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ADDRESS.

FIBROID TUMORS OF THE UTERUS.

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(*Continued from page 10*).

Prognosis.—These tumors frequently cause death. Relatively, they are innoxious in the following order: subperitoneal, interstitial, cervical, and submucous. The last is especially dangerous, for it is almost always accompanied with great loss of blood; a very small tumor may cause fatal bleeding. Yet, although many of these tumors are not dangerous to life, they are liable at any time to cystic degeneration and to set up a train of evils demanding an entirely different consideration. These tumors occasionally disappear, as already stated, after the menopause or pregnancy. When submucous they are frequently expelled through the vagina as polypi. When the capsule ruptures under expulsive effort, they escape in mass or break down and are expelled piecemeal; ulceration of the capsule from any cause favors such a result. Nevertheless, these tumors occasionally destroy the patient through the advent of suppuration or necrosis of the tumor, producing septic poisoning, or, uremic poisoning may occur from pressure on the ureters; fatal peritonitis may result from the irritation of the tumor; or a fatal hemorrhage may ensue; or the long continuance of the discharges may exhaust the patient; or their continued pressure upon the nerves and ganglia may finally wear out the stoutest nervous system. The symptoms are so liable to change from year to year that a guarded prognosis is wise.

FIBRO-CYSTIC MYOMA.

As already intimated, the foundation of every fibro-cystic myoma is a solid fibro-myoma, either unilocular or multilocular. The latter undergoes cystic degeneration to produce the former. The fluids formed in these tumors consist largely of serum, mucus, blood, fat, or lymph, and occasionally pus, and are not confined to true cyst-cavities. The tumor may be infiltrated with serum to such an extent as to give a palpation so like fluctuation that even after the tumor is removed it is difficult to believe that it is not an ovarian cyst. The serum is contained in innumerable small spaces formed by spreading the meshes inclosed in the fibrous tissue. When the lymphatics entering the tumor or passing between the centers of the multilocular variety, dilate, the fluid accumulates often in a large quantity ("fibro-myoma lymphangiectodes" of Virchow). This fluid coagulates on exposure to the air. The formation of mucus in these tumors is more difficult to account for. This form of degeneration does occur and a fluid rich in mucin accumulates. No mucous glands are found, and it is possible that the fluid is the result of a "mucous metamorphosis" of the protoplasm or a separation of the fluid by independent cell action.

The presence of blood in the tumor is not so difficult to understand when we remember that occasionally large vascular sinuses penetrate these tumors and an apoplectic condition, with subsequent clot, disintegration and softening of the adjoining structure may occur. Fatty degeneration and consequent softening have already been spoken of at length. Suppuration in these tumors, though rare, does occur. The subperitoneal and interstitial varieties are most prone to softening, while the submucous variety is not exempt from it. The tendency in these tumors, where the softening arises from infiltration with serum, fat, or blood, is toward enlargement, but subsequent absorption of fatty softening occurs and tends to recovery.

The enlargement from serous or apoplectic infiltration is not of definite limit. The enlargement from mucous degeneration and the accumulation of lymph seems to produce the tumors, which advance steadily in growth until the life of the patient is jeopardized. The rule, however, may be laid down that any fibro-myoma which gives evidence of fluctuation and progression should be removed without delay.

Diagnosis.—The diagnosis of these tumors presents always a question of origin. It also involves the rules of differentiation to be observed in the diagnosis of ovarian cysts. In the latter the uterus is found displaced downward and backward or forward; in the fibro-cystic uterine myomata, if large, the uterus is dragged upward; often the uterine cavity is lengthened, and a sound introduced into it will, when the tumor is moved about, move also, proving the connection between the tumor and the uterus. The tumor must be differentiated from pregnancy.

The shape, size, consistency and duration of the tumor, and effect on the health of the patient are important points. The history of the case pointing to the prior existence of a uterine tumor, and the age of the patient are to be considered. The question may be positively settled by the aspirator needle, which will emit fluid having microscopically characteristics entirely different from those found in ovarian cysts. Free fluid in the cavity of the abdomen is more frequently found than in the case of ovarian cysts, and by reason of the greater solidity aortic pulsation is probably more frequently observed. Even if the patient be within the menstruating age, menorrhagia would not likely be met with in ovarian tumors. Unlike ovarian tumors, the fibro-cysts are not met with in patients under thirty-five years of age. They grow very slowly, and the general health of the patient sympathizes with their presence at a later date. The expression of countenance and the emaciation seen in

large ovarian tumors are quite different. The face is often florid even when the tumor is large, and does not betoken the great danger of the patient. The emaciation comes on later than in ovarian tumor. Elasticity in the tumor may precede fluctuation. The varicose condition of the abdominal veins is rare in these cases, but frequent in ovarian cystomata. Aspiration of these tumors, in which the cysts are supposed to arise from obstruction of the lymphatic vessels, gives a fluid, limpid, yellow, and fibrinous as lymph, which coagulates as it flows into the basin. But when aspirated, the cysts produced by edematous infiltration give a fluid yellow and serous which does not coagulate when exposed to the air. The fluid of this variety may be tinged with blood; if, however, much blood is drawn from such a tumor, it may be from having opened a blood sinus, such as Virchow describes as having met within them.

Coagulability of the fluid was long ago described by Dr. W. L. Atlee as diagnostic of the fibro-cystic myoma. In the fluid drawn from the edematous variety the fluid microscopically presents nothing more than the ordinary constituents of fibrinous serum. The walls of a uterine fibro-cystic myoma are darker and more vascular than those of ovarian cysts. The uterine muscular fiber in the interstitial variety compose the cyst wall or capsule. The adhesions formed by these tumors are often immense—broad bands of tissue, often very vascular. Large plexuses of immensely dilated mesenteric veins are often seen adhering to the tumor, and occasionally the broad ligaments and tubes are spread out upon their walls like great vascular wings. The bladder is often adherent to the front of the tumor and dragged high up on the abdominal wall.

Medical Treatment.—Medically, but little, curative in character, can be done for the relief of patients suffering from fibro-myomata, and nothing for those suffering from those tumors which have undergone cystic degeneration. Many remedies have been given for the cure of solid tumors of the uterus. Prominent among these is ergot and its preparations. Hildebrant established its use hyperdemically, and reported favorable results. Given by the mouth, rectum, or hypodermically in large doses, it is an excellent remedy for the relief of hemorrhages. Few patients can endure a sufficiently large number of injections to do them any good. The deeper into the cellular tissue and fat the fluid is injected, the less pain and danger of subsequent inflammation and suppuration. The late Prof. Byford of Chicago, relied on it in very large and frequent doses to expel the submucous and polypoid variety of the tumor. In addition to ergot, bromid and iodid of potassium, chlorid of calcium, arsenic, and phosphorus have been largely used: the same may be said of chlorid of ammonium. If the physician can keep the tumor out of the pelvis, relieve rectal and vesical irritation and congestion by resorting to elevation of the tumor and uterus by the knee-chest position daily and by copious douches of hot water, in some cases he will afford great relief, diminish the hemorrhage, and nurse his patient beyond the menopause or put her in better condition to bear surgical treatment.

Surgical Means.—As Ephraim McDowell of Kentucky, secured for American surgery the honor of establishing ovariotomy, so the late Washington L. Atlee inaugurated, by the publication of a paper entitled, "The Surgical Treatment of Certain Fibrous Tumors of the Uterus" in 1853, a pioneer movement in the treatment of fibro-myomata. Thomas wrote in 1880: "With the means at present at our command all the variety of fibroids, the submucous, interstitial, and subserous, are amenable to extirpation."

There are but two routes by which these uterine tumors can be removed—either through the vagina or by abdominal section; with the exception of small submucous tumors, all fibro-myomata are reached now by section of the abdominal wall. The tumors properly removed through the vagina are polypoid and submucous. If the cervix has been dilated from within out by the pressure of the tumor, and it remains only to dilate the os externum, the avenue to the tumor is easily made patent. But if the cervix is undilated in its entire length, means must be employed with proper precautions and care to dilate it. The bowels should be cleared out and local congestion relieved by frequent antiseptic hot douches. The cervix may now be divided as far as the vaginal junction, with the scissors, as Meadows has advised, or with the Paquelin cautery-knife still higher as Prof. Thomas advises. Immediately, or after a week of delay, the patient's condition having been still further improved by appropriate treatment, we may proceed to dilate the now shortened and weakened cervix. If the growth seems free to advance, ergot may be given until the canal is sufficiently open to admit an instrument, with which the growth is seized, and traction should be made to assist the uterus to expel it. The importance of traction in the delivery of these tumors was insisted on by Dr. Thomas Addis Emmet years ago. If, however, the tumor is not free in the uterine cavity, it may project sufficiently to enable the operator after dividing its capsule to sink a double tenaculum into it, and still assist its final delivery by traction. If, however, it is necessary to provide for easier access to the cavity of the uterus, we must select means to effect it. If the tissues are tolerably soft, we may proceed at once, under an anesthetic, with Marion-Sims', Gooddell's or Dr. Wilson's large metallic dilator or Molesworth's hydrostatic dilator, with a fair prospect of success. The avenue once open, it should be thoroughly disinfected; the subsequent steps will depend on the location of the growth and its attachment to the uterus. If it be pedunculate, it should be seized with strong forceps and an attempt made to secure its pedicle with the wire loop of the ecraseur, or the galvano-caustic wire, with the former of which it may be crushed off or with the latter burnt off; with the polyptome of Aveling or Sims, the pedicle may be divided. Or it may be twisted off if the pedicle be slender. Once the pedicle is divided, it is delivered by traction. If it be too large, it must be reduced by cutting pieces out of it, or, as Emmet has advised, by making incisions into it in a spiral direction as the tumor is pulled down, the pedicle being reached last. If in the effort the uterus be inverted, reposition should be made immediately after removing the tumor. If by traction upon the tumor with its uterine attachments unsevered, the uterus is inverted, care should be taken not to cut off the pedicle with a sharp instrument, but with blunt scissors or with Paquelin's cautery, or if possible, to separate the growth by enucleation. This precaution should be observed as a guard against subsequent bleeding after reposition of the uterus has been made.

To be more precise, after dilatation of the cervix, polypoid growths may be twisted off, or if their pedicles be sufficiently long to permit, the tumor may be dragged into the vagina, where the pedicle may be dealt with by means of the wire ecraseur, blunt curved scissors, or the galvano-caustic wire; and in case of multipara it may be easy to secure the pedicle with a ligature, and below it cut off the growth with any sharp instrument convenient. When the polypus is in the vagina, if not too large, a Sims speculum may be slipped in and greatly expedite its removal. In cases of short pedicle, in addition to the means already spoken of, the polyptome of Aveling may be used to divide it, or the pedicle may be torn across with a stout curette or spoon saw, if it can be reached. Or the capsule may be nicked with curved scissors in its circumference as high up as possible, and strong torsion be applied to the presenting end of the polyp.

When the cervix is dilated and the tumor found to have a broad attachment to the uterus or to be well imbedded, none of these procedures may avail, and the operator will now meet with real difficulty. The object he must now attain is a method to open the capsule of the tumor. Before proceeding to this, however, he should weigh well the propriety of abandoning the attempt by the vagina for a subsequent removal of the ovaries and tubes after the method of Mr. Lawson Tait, or hysterectomy.

If, however, he elects the more difficult and scarcely less dangerous method of enucleation, he will proceed somewhat as follows: the patient well anesthetized, is placed on her back and an assistant forces the uterus well down toward the vaginal outlet. The operator now passes a finger into the uterus and locates the growth. Having done this, guiding a knife, a probe pointed bistoury, or a pair of scissors on his fingers to a point selected, he cuts through the capsule by as free an incision as possible. With the finger, the point of the scissors and enucleator of Simpson or of Sims, or with Thomas' spoon-saw he peels back the capsule, separating the tumor from its attachments as far as possible. At this juncture he may desist and give ergot—a dangerous experiment for the tumor, now largely cut off from its base of supplies, will probably slough and poison his patient. It is better to proceed, with strong volsellum forceps or Sims' large tumor hook drag the tumor into the vagina, or, if it be too large, cut pieces out of it or cut into spiral incisions as it comes into the open cervix under strong traction. The fact that it is not every fibro-myoma that can be shelled out of its capsule makes it possible to leave behind, either in avulsion or enucleation, pieces of the tumor; these may subsequently slough and poison the patient. The dangers by this method are sometimes scarcely less than by hysterectomy. When the tumors are of moderate size this method promises best, but if the tumor and uterus reach quite to the umbilicus, I would certainly prefer hysterectomy. Notwithstanding I have succeeded thus in enucleating very large tumors.

Simple division of the capsule or capsule and cervix with the guarded knife or Paquelin's cautery-knife, and the subsequent free administration of ergot, may be tried in almost any case, and if the growth is once started from its bed, traction will give great aid. Prompt delivery is the only safeguard against septic poisoning. In skilful hands, the spoon-saw of Thomas is the most effective of all instruments for the immediate enucleation of the tumor. After the removal of the growth, the uterus should be frequently washed out with hot water containing a disinfectant in solution. The surgical treatment of hemorrhage occurring in cases of interstitial and submucous fibro-myomata, prior to the removal of the ovaries and Fallopian tubes, by Mr. Lawson Tait, was confined to division of the cervix uteri and division of both capsule and cervix at the same time. In division of the capsule, the divided blood vessels retract and become occluded. Why division of the cervix sometimes controls the hemorrhage I can not explain, but from personal experience I know it does it.

In many cases removal of the ovaries or ovaries and tubes holds out the greatest promise. After the establishment of the menopause, these tumors frequently atrophy by reason of fatty degeneration. The removal of the ovaries or ovaries and tubes usually establishes the menopause. Possibly it does more. Removal of the ovaries and tubes is now the established procedure. Mr. Lawson Tait found a monthly bleeding persist after Battey's operation, oöphorectomy, and subsequently included, when possible, the tubes in his operation. His experience and that of others is that the operation not only arrests the hemorrhage, but that the growth is also arrested, and in many cases disappears in from six to twenty-four months. He considers the time to get the full effect of the operation to be two years. If cystic degeneration has occurred, or the growth is malignant the operation does no good. It is to cases of small non-cystic fibro-myomata that the operation is applicable. The operation is now thoroughly established.

Tait's Operation.—The removal of ovaries and tubes. His manner of doing his operation is as follows: the abdominal wall is opened by an incision in the median line above the pelvic symphysis. When the peritoneum is reached, he controls all bleeding in the wound with ordinary hemostatic forceps. Picking up the peritoneum with a pair of forceps, he makes a small opening in it. Through this he introduces one finger, dilates or tears the peritoneum, and passes in a second finger; with these he explores the pelvis for the ovary, first on the left side; if adhesions exist, he tears them up with his fingers if possible, and brings through the wound the ovary and tube, and holds them with his thumb and fingers as you would a fold of your handkerchief. Through the broad ligament below the fingers, and of course under the tube, he passes a long handled needle with an eye near the point, armed with a strong silk ligature, its middle point resting in the needle's eye. He now drops the handle of the needle on the abdomen, and slips his right index finger in between the ligature and the shaft of the needle, and draws the double ligature farther through toward his assistant who seizes it. He then withdraws the needle. Taking hold of the loop, he carries it over the ovary and tube and places it between the free ends of the ligature, and winding them around his right hand, draws firmly upon them, and the ovary and tube are at once constricted with a double noose which can not slip. (This is known as the Staffordshire knot). The free ends of the ligature are now tied. He now seizes the pedicle with a pair or two of hemostatic forceps to prevent its escape, and a short distance above the

ligature, cuts the ovary and tube away. After carefully cleaning the peritoneal cavity of all blood, he closes it.

The operation of Mr. Tait, the removal of both ovaries and tubes, is applicable to all cases of small or medium-sized interstitial, submucous and subperitoneal non-pediculated tumors. When the tumor has become so large as to drag the uterus up and lengthen the cervix sufficiently to make a pedicle of it, supra-vaginal hysterectomy becomes a feasible and easy operation. The general adoption of Tait's operation will diminish the necessity for future hysterectomies.

Several methods of supra-vaginal hysterectomy are practiced:

1. The method established by Péan, Köberly, Bantock and Hegar, in which the pedicle is secured extra-peritoneally in the lower angle of the wound.

2. The methods inaugurated (and being established) by Baer, Baldy and others, in which the pedicle is secured outside of and below the peritoneum.

3. The method established by Henry Byford, of opening the anterior wall of the vagina and drawing the pedicle into the vagina, and thus securing it extra-peritoneally.

First method: This extra-peritoneal method is as follows: An incision is made in the median line as long as may be required. All vessels are carefully secured, the uterus and tumor are turned out. Large warm sponges are pushed into the abdomen in front of and behind the uterus; some are also laid over the wound, closely surrounding the neck of the uterus. A steel pin four inches long is passed through the cervix and adherent tissues at right angles. Beneath the pin a wire constrictor, or an elastic ligature, is now placed tightly around the cervix above the bladder; the ovaries and tubes are included in the constrictor. An extra sponge or two are now crowded in against the neck, and with a knife the uterus and tumor are cut away, an inch above the constrictor. Care must be taken not to wound the bladder. Reëxamination of the wound for bleeding points is now made, the sponges are removed from the belly, and the peritoneum is carefully stitched around, and to the cervix below the constrictor. From the cervix to the top of the wound, the peritoneal edges are carefully united with a catgut suture. The entire wound is now closed down to within three-quarters of an inch of the cervix; the cervical canal is now touched with the Paquelin cautery, its edges are trimmed out, and the circumference of the stump is reduced by several cross sutures. Small bits of antiseptic gauze are now carefully packed in around the stump close to the ligature, and filling the portion of the wound unclosed. Over the stump a quantity of subsulphate of iron or iodo-tannin is poured and covered with more gauze. A roll of cotton and a bandage completes the dressing, which may remain undisturbed for from seven to ten days.

The results following this operation are good, and the only objection of any weight to be urged against it is, that the period of convalescence is protracted, usually from thirty-five to forty-five days. I never saw hernia follow it.

Second method: This method has been developed by Dr. Baer and Dr. Baldy. Baer describes his technique as follows: "After the required incision is made all existing adhesions of omentum, intestines, etc., are separated in the usual way, and the tumor lifted out of the abdominal cavity. If the incision has been an unusually lengthy one, several sutures are then placed at its upper end for the better protection of the intestines. The patient may now be elevated to the Trendelenberg posture, if deemed best, and the parts thoroughly studied, so that a clear idea as to the character and location of the tumor and pedicle may be obtained before the ligation and separation are begun. The first step in the operation is the passing of a single silk ligature through the broad ligament near the cervix. This ligature is again made to transfix the broad ligament near its outer edge, to prevent slipping; it is then tied. A stout pedicle forceps is next placed under the Fallopian tube and ovary and made to grasp the broad ligament, for the purpose of preventing reflux from the uterus. The ligament is now severed just below the forceps, the incision being carried close to the tissues of the tumor.

"If deemed necessary, another ligature is now passed through the broad ligament farther down along the side of the cervix. This ligation and cutting are now repeated on the opposite side. The knife is then run lightly around the tumor an inch or two above the peritoneal reflexion of the bladder in front, probably a little lower behind, and the severed edge of the peritoneum stripped down with the handle of the scalpel for the purpose of making peritoneal flaps. The next step is a most important one; it is the ligation of the uterine arteries. This is done in the broad ligaments, outside of, but close to, the cervix. Care must be taken to avoid the ureter on the one hand and the cervical tissue on the other. The ligature may be either placed within the folds of the severed ligament or, which is preferable, made to encircle the double fold of the ligament and artery in one sweep; action here will depend upon the size of the pedicle and the consequent separation of these folds. The constant traction which is made upon the pedicle by the assistant who is holding the tumor, serves to draw out and elongate the cervix after the peritoneal covering has been incised, and thereby to permit deeper incision into the neck, which is next amputated with the knife by a sort of cupped incision. The stump is now grasped with a small volsella forceps, and further trimmed and reduced, if necessary, so that the entire supra-vaginal portion is removed before it is dropped back into the pelvis. The cervix being now released, it immediately recedes and is drawn deeply into the pelvis by the retractive and elastic properties of the vagina, where it is buried out of sight by the peritoneal flaps covering it. These flaps have been rendered so taut by the ligatures which have been placed that usually, as the cervix recedes into the pelvis, they close over it like elastic bands. The cervix is now in its natural position, and without a ligature or suture in its tissues. The operation is finished by infolding the edges of the peritoneal flaps, which may be secured by Lembert sutures if necessary. I have not found this necessary, if the ligatures which secured the uterine arteries had also grasped the severed folds of the broad ligaments, for this so tightens them that the sides are brought forcibly together when the cervix is drawn under. The bladder and surrounding tissues aid also in closing the pelvic cavity. Nothing whatever is done to the cervical canal. The portion of the broad ligament embraced in the first ligature is the same structure which forms the ordinary ovarian pedicle, minus the Fallopian tube. The other

ligatures close the opened broad ligaments, as a rule. If any other vessels are found spurting they are, of course, ligated. I have not found it necessary to employ the temporary elastic ligature." Baldy's method is very similar.

Third method: This is the method of Dr. Henry T. Byford. He first ligates and separates the broad ligaments and any existing adhesions of omentum or intestines, then separates the bladder and uterus. A temporary elastic ligature is placed around the cervix; the tumor and body of the uterus are amputated. The stump is hollowed out and so firmly stitched that hemorrhage is arrested; the elastic ligature is now removed. The other ligatures are left long. An opening is made in the anterior wall of the vagina, through which the stump is drawn by the long ligatures, which are reached by a pair of forceps passed up the vagina from below. The bladder peritoneum is now stitched with catgut to that covering the cervix. The stump now in the vagina receives appropriate treatment.

INTRA-PERITONEAL METHODS OF TREATING THE PEDICLE.

The success which has characterized ovariotomy since all operators have returned to the intra-peritoneal method of treating the pedicle, stimulated the operators on the continent of Europe to endeavor to discover a method whereby the stump of the uterus in supra-vaginal hysterectomy might be left within the peritoneal cavity.

Two points were to be attained:

1. To secure the patient against great loss of blood.
2. A method of forming a pedicle free from the danger of subsequent hemorrhage.

The method of Prof. von Billroth is to leave the stump in the cavity of the abdomen. Ligatures are placed on the blood vessels as they pass through the uterine ligaments to the uterus. When the ligaments require division, they are tied at two points and divided with Paquelin's cautery. The neck of the uterus is seized above the vaginal attachment with a pair of powerful lock-handled forceps, and literally crushed. In fact, I have seen him bite the uterus entirely off with these forceps. In the deep crushed groove thus made, a double ligature is passed through the cervix; each half is firmly tied in the groove and the ligatures are cut short. Above this ligature the uterus is amputated; the sides of the stump are securely stitched together, and the stump is dropped in. When the patient is anemic, or loss of blood is a vital point, he compresses the tumor and uterus with an elastic bandage, after the method of Dr. Leon Labbe, driving all the blood possible into the body.

Koeberle, who instituted the "serre nœud" used in the operation described, abandoned it, and leaves the stump of the uterus in the abdomen.

The method of operating by Schröder was also intra-peritoneal. He aimed to operate with as little loss of blood as possible, and to secure the pedicle against subsequent bleeding. The first point he attained by means of the elastic ligature, devised by Kleeberg, and first applied to the cervix uteri by Prof. A. Martin, placed temporarily around the supra-vaginal portion of the cervix uteri. If the tumor was a pedunculated subserous one with a reasonably-sized pedicle, he tied it in halves and cut the tumor away. If the pedicle was short and thick, he cut it off close to the uterus; if interstitial, he cut the capsule and peeled out the tumor, or cut a V-shaped piece out of the uterus. When the cut surface on the uterus was too flat to close with sutures, he hollowed it out. The wound in the uterus was then closed with several layers of carbolized silk sutures. The last layer brings the peritoneum neatly over the wound. When the elastic ligature was removed no bleeding occurred. When possible, he spared the uterus and its appendages. Tumors developing downward to the cervix and pushing the appendages upward present no pedicle upon which to apply the elastic ligature. In such cases he ligated at two points, and divided between the ligatures, the opposing uterine ligaments and blood vessels. This done on both sides, the tumor or tumors were separated from the surrounding tissues, and the elastic ligature was secured around the base at, or above the junction. The uterus and tumor were now cut away above the ligature. The open uterine canal was disinfected with a strong carbolic solution, the stump was hollowed out or made V-shape, and united with several rows of silk sutures, the last uniting the peritoneum over the stump. A few deep sutures were placed at the sides, to catch if possible the points where the large vessels were divided. The elastic ligature was then removed. After a few moments' delay, if any bleeding points appeared, a few more stitches were put in to control them.

When the tumor has developed from the lower part of the uterus and extended into the cellular tissue, and risen upward, carrying the uterus with it so high that the os can not be reached per vaginam, a grave case is presented. The surrounding ligaments and vessels are first double ligatured and divided. The elastic ligature is placed around the cervix and the uterus is amputated, and the tumor is shelled out of its bed. The stump of the uterus is treated as above described. The great cavity out of which the tumor was shelled may be left open or closed, if possible, with sutures, and drained either by the abdominal wound or vagina. Schröder and Martin preferred the former route. When the bladder is adherent to the front of the tumor and carried high up, he extended the incision to a higher point, and then proceeded to enucleate the tumor from the posterior wall of the bladder. Before closing the abdominal wound the bladder and stump of the uterus were united. Martin operates by methods similar to those of Schröder.

The intra-peritoneal method of Zweifel is probably the best of its class. It is known as the continuous fractional ligature.

Says Pozzi: "Under this name, Zweifel has described a method of suturing the pedicle which certainly assures better hemostasis than Schröder's, but seems, *a priori*, inferior in technique as regards primary union of the stump and its chances of sloughing; however, the good results published by Zweifel demand attention."

In ten cases with his method there was but one death when he published his book (1888), and in February, 1889, he announced a series of twenty-two successful cases. His technique is as follows: for all his ligatures he employs sterilized silk and a needle furnished with a groove which resembles Reverdin's; the point is blunt. He first ties the broad ligaments with chain sutures. He then divides the ligaments and applies the elastic cord, the ligatures nearest the uterus being left long and the elastic cord is passed over them.

In the excision of the tumor, a small musculo-peritoneal lip is preserved both before and behind, and the cavity of the uterus and cervix are cauterized with the thermo-cautery. A sharp needle is then threaded and a series of partial ligatures passed. The peritoneum is closed by a series of superficial sutures. Drainage through the vagina by the cross-tube is necessary only when there is persistent oozing. *Ablation of the entire uterus, including the neck*, is pushing its claim for first place in the evolution of surgical treatment for fibromata. Martin of Berlin, was the first to do vaginal hysterectomy for small fibroids. This operation, for cancer, as well as for fibroids, paved the way for the entire removal of the uterus for fibroids by abdominal section. Bardenheuer and Eastman took the initiative; Krug, Polk, Hall, Mann, Sutton and others have followed it up, and complete removal of the entire organ is practiced successfully.

The methods differ but little; separation of all adhesions, the broad ligaments and bladder, proceed in order, Douglass' pouch is opened, all bleeding vessels are secured. Some operators leave the ligatures long and draw them down through the vagina. The severed ends of the broad ligaments are drawn into the vagina, which is lightly filled with iodoform gauze. Eastman prefers to close the opening into the vagina.

Trendelenberg's posture and the staff of Eastman have made the operation much easier and safer than it formerly could have been.

It is now apparent that through laparotomy there are four ways of dealing with uterine fibroids. These are as follows:

1. Supra-vaginal hysterectomy.
2. Removal of the tumor leaving the uterus.
3. Leaving the uterus and tumor and removing the uterine appendages.
4. Total removal of uterus and tumor.

Which method shall be selected?

In fibro-cystic tumors, entire removal of the tumor is the only proper method, but such is not always the case with a solid tumor.

Every case of fibroid tumor ought to be considered on its own merits, and no rule of surgical procedure should be applied to all cases, as in ovarian cysts. It is very difficult to find general decisive principles, or hard and fast rules, regulating the indications for this operation. A woman may be bleeding to death, suffering pain from mechanical pressure, rendered an object of charity, be dying from nervous exhaustion, the result of the tumor, but the operation suitable for the case will not always be the same. In one case enucleation may be possible; in another, the removal of the ovaries and tubes may be the proper thing; in another, supra-vaginal hysterectomy; and in another myotomy or total ablation of the uterus.

The utmost care with reference to any of these operations is absolutely necessary. A clean operator and assistants, a clean patient and clean nurses, a clean room and clean tools and sponges, are of the utmost importance. The earlier, if necessary, the removal of the ovaries and tubes is accomplished the better. Once the tumor has attained considerable size the difficulty of the operation is increased. Early in the disease the incision may be very short, but later an extensive incision may be necessary. Early in the disease the ovaries and tubes are generally easily reached; later they may be under and behind the tumor. Both ovaries should be removed or neither. If the tumor is causing bleeding, or growing, or affecting the patient's health, and can not be enucleated per vaginam, the sooner the ovaries and tubes are removed the better, if the operation is suited to the case.

Tait's operation is recommended by Thomas, for large tumors. Done in such cases the result will always be uncertain, to say nothing of the difficulty of the operation. Large fibroids frequently contain cavities, which eventually become growing cysts, and have already contracted adhesions through which they are largely fed with blood.

Such, however, is the ordinary effect of the menopause on these tumors when non-cystic, that in cases of women approaching fifty years who are in fair health and doing well, it is wise to abstain from any operation; but for young women the reverse is the case. In cases requiring operation, in which it is not possible or desirable to trust to the removal of the ovaries and tubes, hysterectomy should be accomplished.

When in doubt as to the propriety of operating in many cases by hysterectomy, it is well to recall Keith's language: "Were I anxious for operations I might ere now have done two or three hundred during the last ten years; and from what I know and hear, a great number of fibroids are removed, or attempted to be removed, without the slightest necessity." He cites the following as suitable cases for operation:

1. Rapidly growing tumors in young women.
2. Fibro-cystic and suppurating tumors.
3. Soft edematous fibroid tumors.
4. Many cases of large bleeding fibroids of any age.
5. Fibroids surrounded by free fluid, the result of peritonitis, provided the fluid reaccumulates after tapping two or three times.

Dr. Mann, in a very valuable paper on "The Removal of solid Uterine and Ovarian Tumors," advocates the removal of fibro-myomata when they act as neuromata. Such cases are doubtless rare, and I can add my own testimony to his in reference to their importance, and indorse his statement: "To leave such patients to a slow, lingering, agonizing death seems to me scarcely justifiable, when so good a chance for relief and life seems to be afforded."

Pregnancy and labor are occasionally complicated by the existence of a fibro-myomata. The preservation of the life of the mother may depend upon the removal of the growth, the induction of premature labor or Cæsarean section.

Dr. James R. Chadwick published in a paper read before the Massachusetts Medical Society, at its annual meeting in June, 1885, a report and summary of ten cases of pregnancy and labor complicated by existing fibro-myomata.

Of these cases, one miscarried, two died, and seven recovered; in all of the seven cases of recovery the tumors were subperitoneal. In the remaining three cases the tumors were submucous; two of these died, and the third barely escaped death.

The question of surgical operation for the removal of these tumors during pregnancy is not a very difficult one to solve. When the tumor is subperitoneal and pediculate, pregnancy is not a barrier to its removal. Interstitial and submucous fibroids located above the internal os, can not be attacked with-

out destroying the fetus. When the tumors are developed in the cervix uteri, they should be dealt with according to preceding rules, regardless of the existing pregnancy, provided they are sufficiently large to obstruct labor.

Fibro-cystic myomata are probably more frequent than is generally supposed. Counting the abdominal sections, about 450, for all sorts of tumors, which I have witnessed, 15 were fibro-cystic myomata, and some of the women were beyond the menopause.

Péan and Urdy trace the history of gastrotomy for the removal of uterine tumors through three distinct periods.

The first, which comes down to 1843, comprises those cases in which surgeons, having opened the abdomen with a view to ovariotomy, and finding the tumors to be uterine, shrunk before the consequences of amputation of the uterus, and closed the wound.

In the second period, that of trials and groping, which comes down to 1863, during which ovariotomy made great advancement, several surgeons, Atlee, Heath, Charles Clay and Parkinson, finding uterine tumors where they had expected ovarian, did not hesitate to remove them.

In the third period, beginning with April, 1863, Koeberle, in the presence of a doubtful case, prepared for either ovariotomy or hysterectomy. Storer, Péan, and others deliberately resorted to gastrotomy for the purpose of removing the uterus affected by tumors.

Fifty years have elapsed since 1843, the end of the first period, and we are now only planted firmly on solid surgical ground with reference to these tumors, be they solid or cystic.

The credit of this great triumph in surgery belongs very largely to Kimball, Koeberle, Péan, Keith, Bantock, Schröder and Billroth, and in later years to Bardenheuer, and others, some of whom I have mentioned. The operation was of English birth. Granville did the first hysterectomy in 1837. Heath and Clay of Manchester, operated between 1843 and 1849. Burnham of Virginia, operated successfully in 1853. Since the latter date the progress has been continuous.

CRITIQUE OF MACROSCOPIC EXAMINATION OF SPECIMENS REMOVED IN THIRTY-TWO CONSECUTIVE LAPAROTOMIES.

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The modern success in abdominal surgery excites the admiration of all. It is the outcome of systematic experiments, observation and reasoning. Its success at one time was thought to be due to antiseptics, i.e., chemic solutions which destroyed a vegetable germ. But we know to-day that simple cleanliness accomplishes all. We obtain cleanliness to-day by heat and water, two simple elements. The spray and chemic lotion have passed into oblivion with many others found not essential.

Modern research sifts matters until essentials are found and non-essentials are eliminated. The most delicate of all surgery is that of the peritoneum, which is almost as important to the human economy as the brain. The immediate and remote effects of urgery on the peritoneum should be always held in mind. The greatest of lymph sacs brooks no insults without records. The peritoneum surrounds the visceral organs which hold body and soul together by their wonderfully balanced functions, and pathology which impairs this function should be removed. In the following cases some of the macroscopic pathology will be given to show etiology, pathologic process and final results.

Some views will be presented as to the anatomic and physiologic nature of reflexes. Some of the logical reasons for the removal of abdominal tumors will be presented.

Anesthetics.—Chloroform narcosis is such a rapid, beautiful and quiet affair that I determined to give it a good trial. It acted very nicely in England where I saw scarcely any trouble in a large series of cases. It acted nearly as well in Germany and Austria, where I witnessed a large number of patients narcotized. But I found that we could not use it with the same impunity in this country. Our chloroform does not act as safely on patients as in England and Europe. I have come to this opinion from practical experiments on dogs and careful observation on humans. In chloroform the heart fails, and quite a number of dangerous scenes for five years have made me almost abandon it in laparotomy.

Again, anesthetizers are, too frequently, untrained men who do not realize the terrible significance of keeping constantly before them the pulse, pupil and respiration.

Ether, it must be admitted may induce bronchitis and nephritis but it is the safer. We frequently employ a mixture of alcohol, chloroform and ether. It must be borne in mind that the narcosis is a very important matter in cases exhausted by the presence of tumors, suppuration or worn out by pain. Again, I have shown that many women who have tumors are afflicted with pathologic hearts, livers, kidneys and lung malnutrition.

The preparation of the patient is very important on account of the results. The urine is carefully examined for urea which is one of the standards to decide whether laparotomy should be performed. The kidneys, genitals and peritoneum are very intimately associated anatomically and physiologically, especially by nerves and blood vessels. A disturbance in one is soon followed by a disturbance in another. The kidneys and ureters both, come from the same organ, the Wolffian body. Sometimes a vaginal hysterectomy is followed in a week by death from nephritis. We examine carefully for urea for several days previous to the operation.

The urea varied from four to twelve grains to the ounce. A few days of rest soon brought about a more regular quantity of urea. I think it is not safe to do laparotomy with less than five grains of urea to the ounce. In sudden demands to operate, no time was given to find urea, but such cases were generally fairly healthy, e.g., rupture of tubal pregnancy or sudden invasion of pus. It was shown that a woman who would lie in bed for three days previous to the operation would fare better in the results, the urea would become more regular, her bowels were moved from ten to fifteen times—until the bile glistened in the stool. Her heart stood the operation better. Her abdomen was well scrubbed and a compress bound on the night before the operation. In regard to drain tubes, I used them only where pus was found or extensive adhesions were torn up. As expe-

rience increases with the years, I use less drain tubes in laparotomy. The drain tube we employ is one of my own device manufactured from aluminium, open at the bottom, perforated with round holes for one-third of the distance up and flanged at the top. The drain tube was employed from ten hours to several days. When less than a dram of fluid an hour was drawn from the tube it was removed. I believe the tube increases the danger of infection and hernia to a very considerable extent.

The patient is not allowed to get up before the twenty-first day. The amount of fluid given to the patient after the operation, I am inclined to increase. I give them an ounce of fluid an hour immediately after the operation, and soon increase it to two or three ounces an hour. Fluids flush the kidneys. The second or third day I use enema and Mg. SO_4 to secure bowel movements and intestinal contractions. Distension means intestinal paresis, and abdominal pain generally means excessive gas accumulation. The recommendation to use nux vomica to stimulate intestinal contraction was not followed. The Trendelenberg position is employed in nearly all cases. This position often embarrassed the heart by abdominal viscera pressing on the diaphragm. Four abdominal fistulæ followed which lasted many months, and two are not closed yet (six months after operation). These fistulæ arise in old cases of infected tumors.

As most of the principles employed will arise in each case, I will give an account of them in the following cases:

Case 1.—Miss H. L., age 24. She had had a laparotomy about eight months previously and the physician reported that the tubes and ovaries were removed. She became infected and lay in bed some two months with peritonitis. Dr. Franklin Martin kindly consented to assist me in the operation. On opening the abdomen the intestines were found almost a solid mass, held together by exudates. The uterus was about six inches long and proportionately enlarged. The lower portion of the uterus was so firmly attached to the left pelvic bony wall that I could move the whole woman by moving the uterus. Multiple cysts as large as a child's head existed on each side of the uterus. After careful examination and consultation with Dr. Martin it was deemed inadvisable to remove the uterus, tubes or cysts on account of the dense adhesions. The large cysts were drained with gauze and stitched to the abdominal walls.

Among hundreds of operations seldom have I witnessed such widespread and dense adhesions. A special reason for not tearing up the adhesions was that malignancy was suspected. She recovered quite well. But her subsequent history was of great interest. I kept trace of her for one year. I made the distinct observation in her case of the repeated rupture and formation of cysts without causing peritonitis. The abdomen would swell and become tense and then suddenly flatten out. As soon as the abdomen flattened out her pain disappeared. But I also noted that she had profuse diuresis for several days. This drained the cyst which ruptured into the peritoneum through the kidneys. I had made this same observation while experimenting on dogs three years previously. While operating on dog's intestines I would occasionally fill the dog's abdomen full of warm water and then close the abdominal wound. The dog would urinate profusely for two to four days. The water was absorbed by the peritoneal stomata and eliminated by the kidney. It is quite rare to observe the repeated formation and rupture of cysts in the abdominal cavity, especially when it is followed by no peritonitis. I once drew a few quarts of fluid from the cysts through the vagina but the cysts quickly refilled. At the puncture a dense adhesion formed so I concluded not to puncture any more but to wait until the filling of the cysts gave her such pain that she would seek another operation.

I wished to have another operation for two reasons: 1, it could be noted that the girl would die if not relieved; 2, also noted that the formation of the cysts had torn the uterus from its dense, firm attachment and pushed it up into the abdomen, so that six months after the operation convinced me that the uterus and appendages could be removed. But I watched her every few weeks for a whole year, and her case presented a volume to any gynecologist. The cysts would fill until the abdomen stretched like a drum head. Such stretching and pushing elevated the whole uterus above the pelvic brim although its adhesions were such that they would hold 150 pounds. The pain was intense at the climax of tension. Suddenly one of the cysts would break and the abdomen would flatten. Pain would cease. Profuse diuresis would ensue. No fever arose. Slowly the cysts would refill. The greatest volume of information in this case arose from the pressure and irritation of the cysts on the viscera through reflex action. The effect of irritation and pressure on this young woman were:

1. Kidney disturbance; the irritation passed from the diseased location (pelvis) up the hypogastric plexus to the abdominal brain where it was reorganized and sent over the renal plexus to the kidney.

The kidney was forced into three troubles: it secreted *excessive urine*, *deficient urine* or *disproportionate* quantities of its elements. Every one of these conditions continued with this girl. She made large quantities at times, and again small quantities of urine loaded with salts and the irregular quantities. Thus the kidney was under continual irritation from the tumors. The irritation was transmitted to the kidney by reflex action by way of the hypogastric plexus, abdominal brain and renal plexus, i.e., a distinct anatomic route.

It would not take long to produce diseased kidneys if such irritation were long persistent. This effect on the kidney by reflex action from the cysts induced me to desire another operation. But I never requested her to undergo another operation. Her own condition (pain and inability to work) forced her to ask it.

2. The second effect from the cysts, I observed in this 24-year-old woman was constipation and indigestion. Her appetite was poor and capricious and at times wanting. The digestion was disturbed by the irritation passing up the hypergastric plexus, and being reorganized in the abdominal brain and sent out to the digestive tract by way of the gastric plexus (to the stomach), by way of the superior mesenteric plexus (to twenty feet of small gut) and by way of the inferior mesenteric plexus (to the large bowel). The irritation thus reflexed to the digestive tract would disturb sensation, motion and secretion of the whole canal. The result on the tract was *increased*, *decreased* or *disproportionate* secretions. In fact, the indigestion was so persistent that malnutrition soon appeared. Malnutrition resulted in some eight months in anemia. Curiously enough she never became neurotic. If she was allowed more time under such disturbances, neurosis would finally appear.

3. The third effect I noted this year of visceral irritation from the tumors was cardiac disturbance. The heart performed its action rapidly and irregularly. The irritation from the tumor passed up the hypogastric plexus to the abdominal brain where it was reorganized and transmitted up the great splanchnics to the three great cervical sympathetic ganglia, where the forces were reorganized and sent direct to the heart. The pneumogastric rules the steady rhythm of the heart, while the sympathetic rules the rapidity of the heart. So that disturbances of the kidney, digestive tract and heart arose from a year's irritation of the tumors. The lungs, liver and spleen so far had not manifested any disorder perceptible. She was incapacitated from labor a whole year until the next operation.

Tumors demand removal from reflex irritation through the sympathetic nerve. An abdominal tumor will cause fatty degeneration of the heart, indigestion, malnutrition, anemia, neurosis, fatty degeneration of the liver, irregular action of the lungs (asthma) and degeneration of the spleen —all through reflex action on the abdominal brain.

Case 2.—Mrs. M., age 54. She was referred to me by Dr. A. R. Martin with a diagnosis of cancer of the cervix. The hemorrhage was quite profuse and continuous with a distinct odor of decomposition. I did vaginal hysterectomy at the Woman's Hospital with the kind assistance of Dr. Franklin H. Martin. I used the ligature. The patient recovered, but I wish to note a peculiar point in regard to temperature. In twenty hours her temperature sprang up to 104; pulse was about 85. This rapid change of temperature was not due to sepsis, but to disturbance in the heat centers (reflex) from wounding and constricting the great hypogastric plexus. It was a neurotic rise of temperature. It fell suddenly in ten to fifteen hours. It may be that the injury inflicted on the hypogastric plexus by ligature is reflected to the me-

dulla or heat center and inhibits the action. At any rate the heat center lowers its tone and runs riot until it recovers from the shock of the ligature. The operation was done eighteen months ago. The cancerous mass has returned in the stump at present as large as a hazel nut, and she has begun to bleed easily again.

From the clinical and macroscopical manifestation I diagnosed cancer of the cervix, with a fibroid tumor three-quarters of an inch in diameter situated in the cervix in the site of the cancer. This specimen was warmly discussed in the Chicago Pathological Society by Drs. Van Hook, Hektoen and Angear. The opinions were divided between sarcoma or cancer. This discussion proceeded, even, with excellent specimens of the tumor under the microscope prepared by Dr. Angear. Dr. Angear has carefully worked it out, and I fully agree with him that the specimens which he so accurately prepared are cancer.

The manner of return (eighteen months and slow) show it to be cancer. If it were sarcoma it would return and grow rapidly. Recurring sarcoma grow with the rapidity of an avalanche. This shows that the microscope can not be relied upon in early diagnosis. In Vienna I have known of a dermatologist, a gynecologist and a pathologist in consultation over a disease of the labia, but utterly unable to agree as to the kind of disease they were examining. Disease is simply a change of structure, and there are early stages when clinical symptoms or the microscope will not decide its nature. Time alone will tell.

I am opposed to vaginal hysterectomy for cancer when the disease is advanced in the broad ligaments to any considerable extent. It does not elevate surgery and only shatters the renewed hopes of a despairing patient. I believe, also, that many of the reported cases of uterine cancer cured by vaginal hysterectomy were mistaken diagnoses. Cancer is a disease which will not be cured, whether in the uterus or other location. But with the incipient cancer of the uterus—in the early stage of cancer—vaginal hysterectomy is eminently proper and highly hopeful. It is the proper method of treatment.

Case 3.—Mrs. P., age 32. Two children, the youngest 6. Abortion four years previous. She had been ill since, more or less. Examination revealed the uterus fixed with a mass of exudation on its left about the size of a cocoanut. She took hot douches at home for a month. She then went to the Woman's Hospital and lay in bed some ten days. Douches and rest cleared up two-thirds of the exudate. I operated in September, 1893, removing the tubes and ovaries. She had much pain at the monthly. The tubes were very crooked and convoluted. She made a good recovery, but she was tubercular and it appeared to me that the tubercular lungs became slightly worse. However, ten months after the operation she is well in the pelvis and fairly well in the lungs.

She became very neurotic from her four years' invalidism, and would have hysterical spells. This case was a very good lesson as to what preparatory treatment will do. It made the exudate less, her recovery smoother, the operation easier and sequelæ less apt to occur. Dr. Mary Shibley and Dr. Marie White assisted me in the operation.

Case 4.—Miss A., age 22. A history of gonorrhea was fairly evident. She was sick in bed for eleven weeks and pus had flowed from the rectum for six weeks. The case was referred to me by Dr. Chas. Simons and Dr. D. T. Nelson. I operated on her at the Charity Hospital, assisted by Dr. Franklin H. Martin and Dr. Mary Shibley. Vaginal examination revealed the whole left half of the pelvis a solid mass. On opening the abdomen, a tumor the size of a cocoanut presented, lying in a dense mass of exudates and old adhesions. By carefully separating the adhesions and enucleating the tumor, I finally brought it into the abdominal incision when its terribly foul contents burst and flowed among the intestines. Now, came a very peculiar feature in the case. The left tube was about nine inches long and so large and dilated that it actually resembled a gut. So near did it resemble a gut that we could not decide what it was until it was traced right to the uterus. Both appendages were removed. But no hole could be found in the gut, rectum, sigmoid or small intestine, so I closed the abdomen with much misgiving for fear of leakage from the old fistula which had discharged pus for six weeks through rectum. Drainage was employed. To my surprise and delight she made a good though not rapid recovery. She walked away quite well in a month. At present writing she has a small abdominal fistula, ten months after the operation. She is in splendid health and has gained some twenty-five pounds in weight.

The specimen was from a slow progressive pathologic process. The large tumor I made out to be an ovarian abscess which had perforated into the rectum. Its contents had a fecal odor. The left tube was some nine inches long and looked like a piece of small intestine. Its peritoneum showed remnants of perisalpingitis, old adhesions, flakes of lymph and thickened from inflammatory exudates. The reason the tube was so long was because the ovary in enlarging had stretched it. The muscular wall of the tube was not very much changed except, perhaps, the longitudinal muscle layer was increased some. The muscular wall was mainly thickened by inflammatory exudates during successive inflammatory exacerbations. The essential and main changes occurred in the endosalpinx—the mucous lining of the tube. It showed all stages of inflammation. Parts were totally destroyed but most, partially. Some spots were denuded and some showed the progressive, infectious catarrhal process—gonorrhea.

The tubal lumen was irregularly dilated. The method of closure of the fimbriated end was no doubt the chief reason of the ovarian abscess. In closing, a part of the fimbriæ were left outside of the tubal lumen, while the remainder were turned in. Now those left in the abdominal cavity kept up a continual chance for renewing infection of the pefitoneum. The ovary is nearly always infected by the tube, and is, therefore, a secondary disease. This ovary was cystically degenerated, i. e., the gonorrheal process had passed from the tubal mucous membrane to the germinal epithelium of the ovary, and then passed on to the membrana granulosa which lines the graafian follicles. The gonorrheal pathologic process had then disturbed the normal membrana granulosa, and these little cysts had abnormally dilated. The opposite tube and ovary were in an incipient stage of salpingitis and chronic ovaritis. The endosalpingitis had sufficiently started and existed long enough to have involved the ovary—it was cystically degenerated. The muscle of the tube and its perisalpinx or peritoneal covering was almost normal. I removed it because the gonorrheal process was well rooted in both endosalpinx and ovary.

This patient had suffered so many recurrent attacks of pelvic inflammation that her peritoneum was tolerant to a severe and dangerous operation. The operation absolutely saved her life and she is made a useful citizen.

Case 5.—Operated on Feb. 28, 1893, at the Woman's Hospital. I was assisted by Dr. Mary Shibley and Dr. Marie White. She had been an invalid for six years. She was 36 years old. She aborted once, but had no children. She gave ample evidence of gonorrheal and syphilitic infection. She had refused operation six years previous, and was now a confirmed invalid, unable to earn her own living and deserted by the man who infected her. Examination per vaginam revealed old pelvic peritonitis. The roof of the pelvis felt like thick, slowly yielding leather. The uterus was fixed and on the left was a tumor the size of a small

hen's egg. On opening the abdomen the appendages were found small and atrophied. The tumor proved to be a broad ligament fibroid of a very peculiar nature. It had around it a distinct capsule which could be peeled off. The tumor was enucleated from the broad ligament with the greatest difficulty, shocking the patient considerably. The appendages were both tied off. The abdomen irrigated and drained. She recovered well for a week, when the temperature rose to 100 and 101 for some ten days. Pulse about 100. Her abdominal wound seemed to have insufficient vitality to heal well. She finally recovered with an abdominal fistula which is still open and has a suspicious appearance of malignancy. I have had cases where a fistula developed in the wound many months after operation.

Six months after the operation she looks fairly well, but the wound is not healed. The fistula is surrounded by thickened and hardened tissues which reach down into the pelvis. It may be of a syphilitic nature. It may be observed that such old invalids, with ruined nervous system and infected venereally, do not make brilliant recoveries, but she is lately doing better.

The tumor is a typical sample of a solid hard fibroid. It had no pedicle and was surrounded by a firm capsule. It gave the woman much trouble by becoming inflamed and tender quite frequently. This inflammation and tenderness was difficult to account for, as the tumor seemed to be a broad ligament fibroid. I mistook it for the ovary on account of its tenderness. I still think the tumor did not give the tenderness, but that the tube behind it had exacerbations and made the pain appear to be in the tumor. This tumor was considered to be an ovary for six years of treatment. Both tubes and ovaries were mere relics of an inflammatory process. The perisalpinx showed signs of old inflammation. It was thick, covered with old adhesions and flakes of lymph. The muscle of the tube had almost entirely disappeared and was replaced by hard, white connective tissue.

The endosalpinx or mucous membrane was nearly all gone, except in little patches. The pathologic process indicated that the original inflammation proceeded from the endosalpinx, and it and the muscular layer were almost entirely replaced by one-fourth of an inch of solid, hard, white, glistening connective tissue. The lumen of the tube was obliterated at intervals in its course, leaving small closed cavities with endosalpinx in all stages of disintegration. The fimbriated tubal ends were closed like the fused end of a glass tube. She had not menstruated for nearly two years. The ovaries were only one-third the normal size, shrunken, covered with scars, with a few cystically degenerated follicles lying in them. One ovary had pieces of calcium salts in it the size of a pea, and smaller ones the size of wheat kernels. It was a calcified ovary, not ossified. These fragments of calcium salts were secreted by the membrana granulosa just as an egg is coated by its calcium shell as it passes through the ova duct of the hen. I have observed calcified ovaries several times. The membrana granulosa will not only secrete lime salts but will secrete a cheesy matter which I have found scores of times in the unruptured graafian follicle. In this woman, gonorrhea had ruined her pelvic organs and syphilis was well grounded in her system. She visited my office Aug. 3, 1893, and was looking well. Her fistula had closed and about all infiltration had disappeared from the operative field. She was much more fleshy, and ruddy cheeks began to appear; pronounced herself as doing well.

Case 6.—Age 25, puberty at 13. Menstruation regular but painful, so she is always in bed for the first two days. The flow is profuse for three days. Examination revealed a mass on each side of the uterus. She was undefinedly ill for several years; married six years. She gave me a distinct history of gonorrheal infection from her husband some four years previously. She was an invalid and Dr. Stillians sent her to me to operate at the Woman's Hospital, where Drs. Shibley and White assisted. She had double pyosalpinx. We irrigated and drained. She made an excellent recovery and went home in the fourth week. I saw her six months after, and instead of appearing as an invalid she is healthy, ruddy and has gained some fifteen to twenty pounds in weight. Silkworm gut was used for abdominal sutures.

The tubes and ovaries are in a solid mass. The only difference in the two specimens is the difference in the closure of the abdominal end. One of the tubes opens right into the ovary like a clay pipestem into the pipe bowl. Its fimbriated mouth never closed but simply became glued on the ovary by inflammation. That ovary was smelted with the tube into a solid mass. It presented a tubo-ovarian abscess. The ovary was infected by the gonococcus through the tube—secondarily. The ovary was cystically degenerated.

The endosalpinx was almost entirely obliterated. It was smooth as leather; all epithelia had disappeared. The muscle was so much altered that considerable was crushed out, and the endosalpinx and the muscle were replaced by connective tissue. The lumen of the tube was irregular and about the size of the little finger.

The perisalpinx was much thickened, covered with adhesions and flakes of lymph. The tube was very crooked and wound itself around the ovary. The other tube and ovary presented an entirely different spectacle due to its mode of closure. The fimbriated end had all its fimbriæ nicely turned back into the tubal lumen, and they lay like the petals of a rose, neatly coiled up. This mode of closure retained the pus entirely in the tubal lumen, and the lumen would admit the thumb.

The tube—perisalpinx, *musculature* and endosalpinx—was similar in all other respects to its fellow from the gonorrheal process. But since the pus was retained in the closed tubal lumen, the ovary escaped the chief brunt of the infection. The ovary is only slightly infected, aad now as I write, it lies before me in the water, floating almost free from adhesions. It escaped the main infection because the ostium abdominale closed before infection had passed into the ovary, before the ovary became ruined forever. This ovary has some four graafian follicles in a state of cystic degeneration, but it is otherwise a fairly normal ovary with scarcely any adhesions on it, all due to the mode of closure of the fimbriated end of the tube. The tubal wall is over one-fourth of an inch thick of solid connective tissue. The appendages show the typical progress of gonorrhea.

Case 7.—Mrs. M., age 56. Four children. I operated on her six months previous for uterine cancer, removing the uterus and leaving the appendages and broad ligament. Drs. Shibley and White assisted me at the Woman's Hospital on Jan. 18, 1893. The lesson which I learned in this case was to remove the appendages, always if possible, in a woman over 35, along with the uterus, for Mrs. M. developed a parovarian cyst in the right broad ligament. If I had removed both appendages she would have escaped the second laparotomy. But in a woman under 35 I would generally prefer to leave the appendages in the pelvis to prevent a too sudden and precipitate menopause, i. e, a premature neurosis. The tumor as large as a child's head was easily removed and she made a good recovery. I will note here that I had used boracic acid sprinkled on the abdominal wounds on twenty cases, and four abdominal wounds suppurated and we traced it to the impure boracic acid. I

now use nothing but sterilized gauze, but I would prefer boracic acid above all other remedies as it desiccates the wound. It prevents the adhesion of the gauze to the wound stitches and dries up secretions. Boracic acid is a mere common commercial article, is put up by all classes of workmen and is apt to be impure. She was drained; pus in wound suppurated and attracted our attention, for it was a simple laparotomy. Since that time no wound has suppurated except a case of gonorrheal pyosalpinx.

The specimen removed was a parovarian cyst containing about a pint of clear urine-colored fluid. We know it is a parovarian cyst for we can enucleate it entirely from the broad ligament on account of its position. The Fallopian tube, some six inches long, is stretched over the superior circumference of the cyst. The cyst itself is a fibrous sac; the outside is smooth and glistens. Its outer layer is composed of fine, visible fibrous strands of white tissue interlacing in all directions. Its inner layer almost exactly resembles a human bladder which had been dilated for a long period. The large fibrous strands resemble a honeycomb meshwork. It looks like the inner meshwork of muscles lining the left ventricle of the heart. The fibrous strands run in bundles in curved directions, making circular depressions surrounded by whorls of strands of coarse connective tissue. Of course these were hypertrophied by a slow process. I would account for the curved bundles and whorls of connective tissue by the stretching and displacing of the longitudinal and circular layers of tissue surrounding the tubes of the parovarian out of which the cyst arose. I could find no trace of the parovarian, except a few small blisters lying just above the Fallopian tube where it is usual to find a few, viz: close to the abdominal sphincter of the tube. The fibrous strands of the cyst wall are plain to the naked eye and very large under the lens. The cyst had a short pedicle which did not open into its cavity. The tube of Fallopius is interesting, as it is stretched about six inches long and is closed at both ends, one end from the ligature six months ago and the one fimbriated end was closed by old pathologic process.

The perisalpinx is simply thickened but notes no inflammation. The *musculature* does not show much change. But the endosalpinx or mucous membrane shows a peculiar change. There is no fluid of any kind in the tubal lumen. The tubal plicæ look much like the wrinkles in an old person's face or in the scrotum. The fine epithelium is all gone, and under the high lens the endosalpinx appears like an oiled, clean shaven hogskin with many wrinkles in it. The tubal plicæ are all in perfect parallel rows and fall to either side like the ruffles of a linen garment. In the middle of the tube there is a break in the plical rows as if they ran into a sphincteral opening, and here I find the tube has an opening only covered by peritoneum. This depression is called a tubal hernia by some, but it is simple a deficiency of the tubal wall; an attempt at the foundation of a tubal ostium. I would call attention to the idea that here is a good chance to account for some tubal pregnancies, for the ovum may drop down into this little pit and there being deficiency of muscle it is not forced on by tubal peristaltis and so grows in the depression.

The lens shows beautifully the perfect endosalpinx subjected to senile changes. The tubal lumen is slightly wider than normal, but the stretching accounts for that. The rows of tubal plicæ have lost all villous appearances; no fringes appear; simply, bare wrinkled folds of endosalpinx in perfect order under the lens, only now suggestive of their old wonderful function of twenty years ago. After the parovarian cyst was enucleated a splendid view of the broad ligament came to sight. It had developed in it considerable muscular tissue and connective tissue. As I previously noted, after fifteen months Mrs. M's cancer is returned in the old stump of the extirpated uterus.

Case 8.—Miss N., age 19. Puberty at 13; menstruation regular with some pain; suffers much with frontal headache. Has leucorrhea. Has not been strong for four years. She is very tender on right side extending in pelvis and lumbar region. Bowels regular. She had been ailing for four years and at one time she was in bed for several months. She was sent to the Woman's Hospital where I repeatedly examined her for several weeks. Nothing very definite could be diagnosed, but on the right side and in the pelvis a swelling was felt. Her temperature varied and she was very tender. For two weeks I refused to operate, but afterwards several sudden rises of temperature and severe attacks of pain induced me to explore for two reasons: 1, appendicitis; 2, disease of the appendages.

It may be noted that a distinct history of gonorrhea was told, viz: sudden acquisition of burning and scalding in making water which lasted for several months. Leucorrhea was present. Frequent recurrent pelvic attacks occurred. I watched her daily for some three weeks and finally concluded to operate assisted by Drs. Shibley and White. I removed both ovaries and tubes also the vermiform appendix. She did well until the fifth day when a hematocele appeared on the right side about the size of a large apple. The temperature sprang up to 103. I had about decided to cut a couple of stitches in the abdominal wound and introduce my finger into the swollen mass when she suddenly began to recover, i. e., the pulse and temperature went down quickly to nearly normal. It is a question in my mind whether these swellings occurring after laparotomy on one side of the pelvis are not due to infection, i. e., they are exudates and not hematocele. The tension of this swelling gave her much pain by pressure on nerves and that may raise temperature. I shall carefully further investigate this subject, whether it be exudate from infection or hematocele which so frequently follows laparotomy.

In Mr. Tait's work, I think it occurred in about 12 per cent. while I was a pupil during six months. The girl left the hospital well, some six weeks after the operation.

The specimens, viz: the tubes and ovaries and vermiform appendix, I carefully preserved in pure alcohol without allowing them to be handled. When I wish to examine them they are dropped into clear water and become soft and normal again, except in color. Both tubes are very similar. They are very short, convoluted, with sharp spirally curved angles and smaller than normal. The uterine end is very small. The peritoneum does not dip down into the angles, but stretches from one tubal convolution to another, showing that the tube is quite free in the broad ligament or mesosalpinx. It appears to me that such a contorted, spirally angled tube in a virgin is a congenital malformation. If convoluted tubes are found in the multipara it is likely a reversion to the fetal type, due to subinvolution of the longitudinal muscular fibers of the tube. These fibers are chiefly enlarged in gestation. Several years ago I discussed and presented the subject of contorted tubes to the profession, noting that it was the chief factor in virginal dysmenorrhea. It causes tubal colic and is the phenomenon in pre-menstrual pain. This woman had quite typical, contorted twisted tubes and she suffered much pain at the menstrual period. Such tubes are difficult to drive menstrual fluid through by reason of so many bends and angles in the lumen, and thus is excited tubal

peristalsis and tubal colic. No changes can be noted in the musculature of the tubes, nor does the high lens indicate any pathology in the perisalpinx. Any pathologic changes under the eye or lens is to be found in the endosalpinx. The mucous membrane of the tube is swollen, a little edematous and is so luxuriant and abundant that it quite fills the lumen. In good sunlight under the lens it lies in folded wrinkles, not so uniform as it does in the general tube.

The tubal plicæ do not lie in distinct parallel folds, but such parallel folds are broken by whorls encircling depressions in the ampulla; such depressions lie as usual on the side of the tube not covered by the peritoneum. The depressions or pits appear to be embryologic attempts at the formation of accessory tubal ostia; for the bottom of the pit is generally only covered by peritoneum and where the tube is not covered by peritoneum the wall is made of slight muscular layers and connective tissue. These pits or whorls lying in the ampulla are in my opinion ample explanations for ectopic pregnancy.

The ovum falls in one of these depressions and there is no particular force to dislodge it as the muscular is deficient, so that peristaltis will fail to forward the ovum toward the uterus. Some of the tubal plicæ are one-quarter of an inch long. In this tube the abdominal ostium is very peculiar. The tube appeared to attempt to form a double abdominal ostium but the septum between the two abdominal ostia failed to grow or atrophied, and there is presented in this case a large irregular ostium having abnormally abundant and luxuriant folds of tubal plicæ.

The abdominal ostium is one and one-half inches across. The lens shows no break or ulceration in the endosalpinx; it is simply in the mild early stage of endosalpingitis. In this case the tubal plicæ of the endosalpinx are so luxuriant, abundant and swollen that the tubal lumen was well filled and fluids would be difficult to force through.

To force fluids through at the menstrual time would require considerable peristalsis which often amounted to tubal colic or pre-menstrual pain in her case. The ovaries were about normal, but I would call attention to the fact that there is a distinct corpus luteum in one ovary one-half inch across. But observe that she never had an abortion nor a child. The conclusions are just what I found several years ago by investigating animals, i. e., that the corpus luteum is no sign of pregnancy, and its elevation to any legal significance in courts of justice is a relic of false so-called authority.

The parovarium was normal except the dilatation of one of Kobelt's tubes to the size of a pea. Gartner's duct and the tubules were normal. The vermiform appendix was in a catarrhal condition. The mouths of its swollen glands were enlarged, red and had too much secretion. It had several ulcers on its surface which were quite plain under the lens; some of the ulcers had denuded the epithelium and some were secreting gray slimy mucus. No doubt this was an appendix which had recurrent attacks of catarrh; in fact it had an attack as often as some irritating substance entered the valve of Gerlach and irritated until it became expelled.

(To be Continued.)

Blank Applications for membership in the ASSOCIATION at the JOURNAL office.

ACUTE ENDOCARDITIS IN CHILDREN.

Read in the Section on Diseases of Children, at the Forty-fourth Annual Meeting of the American Medical Association.

BY GEORGE N. HIGHLEY, M.D.
CONSHOHOCKEN, PA.

ETIOLOGY.

From a practical point of view, we can not look upon acute endocarditis as an idiopathic disease; if it ever occurs as such, it has been so rarely recognized that its existence in that form seems more than doubtful. Causes like cold, etc., which seem so prolific in producing inflammation of other similar structures,—as for instance the other serous and the mucous membranes—apparently have little direct influence in setting up inflammation of the inner lining of the heart. This immunity may be due to its situation, but it is difficult to assign a cause for it. This escape from primary affection is more than counter-balanced by the frequency with which the membrane is affected through the agency of other diseases—due wholly to the pathologic condition of the blood which those diseases create.

The pathologic state which we call rheumatism is responsible for the largest number of cases of endocarditis. In the acute rheumatism of childhood it is almost always present, though frequently overlooked. This fact should be well borne in mind, and all cases of rheumatism treated with the idea that in that affection the endocardium is as prone to inflammation as are the membranes of the joints. A great many permanently damaged hearts have been found long after an attack of rheumatism, in which at the time there were no special cardiac symptoms. The principal predisposing cause of rheumatism is undoubtedly the incomplete oxidation of metabolic products—the suboxidized proteids being particularly prominent in this respect. With the blood charged with these materials, the body first over-heated and then exposed suddenly to cold (air or water), and rheumatism is the natural result. The so-called heredity of affections like this, means that habits of the body, as a whole, and of its different parts (the various organs and perhaps the individual cells) have been transmitted from parent to offspring; similar causes and conditions produce like effects.

Next in importance to rheumatism, is the consideration of the cause of endocarditis. Scarlet fever is a disease from which few children escape being attacked before they reach maturity and from which, too, hundreds and thousands annually lose their lives; many times that number suffer irreparable injury from its virulent virus. It is likely that nearly as many cases of endocarditis have originated in scarlet fever as in rheumatism.

Diphtheria, variola, pyemia, puerperal fever, and all other diseases in which the blood is contaminated with a morbid poison, may produce the disease under consideration. Alteration of the chemic or physiologic state of the blood is its chief causal factor—the pathologic condition existing in acute rheumatism being particularly active in this respect. This, however, but brings us back a step in our search for the source of the malady, and a much more difficult question then confronts us, viz.: what are the causes of the antecedent diseases? Not to enter too deeply into this broad inquiry, which would be foreign to the purpose of this paper, I will,

nevertheless, ask for a brief consideration of the cause of the two affections with which acute endocarditis is so frequently associated, viz.: rheumatism and scarlatina.

In these days, when germs and disease are so constantly associated in the minds of medical men in the relation of cause and effect, it is but natural to find a microörganism assigned as the sole cause of each and every disorder of the body. Alleged discoveries are frequently put forth in support of this claim, so that now most of the diseases have had special organisms discovered, to which it is believed they owe their existence.

Now while our bacteriologic Uhlans are welcome to this belief, if to them it is self-satisfying and sufficient, it is to be hoped that the great body of practitioners—those who meet disease at the bedside and not in the laboratory—will at least withhold their judgment until more positive evidence is adduced. For upon the opinion thus formed will depend, in a large measure, the treatment to be pursued.

In the light of present knowledge it seems most reasonable to believe that the zymotic diseases—malarial fevers, smallpox, scarlet fever, etc., have a microbic origin, but that most of the inflammatory affections,—as for instance rheumatism, pneumonia, peritonitis, etc., do not arise in that way. (I am speaking of the primary forms of these diseases.) This latter class of affections so often follows exposure to cold (a sudden chilling off,) injuries, etc., and never, so far as we know, comes by reason of exposure to polluted air or to emanations from preceding cases, that we may reasonably regard them as due to the first named class of causes and not to the last. On the other hand, no amount of exposure to cold can cause a scarlet fever, a diphtheria, or any other of the zymotic diseases, but a very slight exposure to their contagium is sometimes sufficient to infect the most vigorous child.

An attack of rheumatism is almost invariably preceded by a history of having taken cold, i. e., the warm and perhaps over-heated body has been allowed to suddenly chill off. When this occurs it is the surface which feels the change first. The action of the skin is suspended, the superficial blood vessels contract, thus forcing the blood toward the internal organs; normal metabolism is thus seriously interfered with and the metabolic products can not easily be gotten rid of by reason of the inactivity of the skin. Lactic acid and other abnormal constituents appear in the blood, inflammation of the joints, and the phenomena of rheumatism rapidly follow. Predisposition to these processes is produced by long continued over indulgence in food in excess of bodily need; or of those kinds of food which are the most readily oxidized—the carbo-hydrates and fats,—and which therefore use up the oxygen of the system at the expense of the proteids, leaving the latter in a suboxidized state.

Rheumatism and scarlet fever have a widely different origin, but their effects are to a certain extent very much the same.

SYMPTOMATOLOGY.

The signs of endocarditis are rarely very marked, and the disease may run its course without giving any evidence of its presence—a valvular lesion discovered later on being the first intimation of its having existed. The insidious nature of the affection makes it all the more important that a thorough and frequent examination of the heart should be made in every condition in which it is likely to occur. A very rapid pulse, beyond that which the antecedent disease would naturally produce should excite suspicion. If auscultation reveals a soft murmur, a slight prolongation of systole or a tendency to reduplication of either the first or second sound, its presence may reasonably be inferred. Dr. Cheadle says: "Reduplication of the second sound, heard at the apex, and diastolic bruit, are among the most certain signs of rheumatic endocarditis." (Cyclopedia Diseases of Children, Vol. II. Keating.) Should the disease not early prove fatal, a pallid face and other evidences of anemia become marked features. This condition is due to obstruction of the pulmonary circulation. There is also much wasting of tissue, the child becomes thin and feeble. Dropsy rarely ensues, unless there be disease of kidneys coëxisting. Should there be also inflammation of the heart muscle, or of the pericardium, subjective symptoms become more pronounced. The child is restless, has a distressed look, and, if old enough, complains of pain and discomfort over the region of the heart which often palpitates violently.

Sometimes embolic detachments, from the deposit of fibrin on the inflamed valves, may be carried by the blood current into the lungs, the brain, or other organs. This would give rise to a sudden elevation of temperature, increase in rapidity of pulse, together with the local symptoms caused by the affected organ or part. In addition to the special symptoms which are indicative of endocardial inflammation, there are the symptoms of the disease with which it is associated.

TREATMENT.

Perhaps the most important thing for consideration is the question of prophylaxis. Can endocarditis be prevented in those diseases in which it is so prone to occur? In many cases the answer will surely be, yes; in some, no. In all cases the severity of the attack can be greatly lessened and the amount of damage to the heart, therefore, much diminished. To achieve this end, there must be a clear conception of the pathologic condition which is the active cause of the affection. There is, in addition to the contamination of the blood with morbid materials, an elevation of temperature and an increased number of heart beats. These three elements are the important factors in the production of endocarditis. The indication is clearly then; 1, to prevent as much as possible the formation of the morbid elements in the blood; 2, to keep the temperature down; 3, and to quiet the excited action of the heart.

To achieve the first, the diet must be made to conform to the demands of nutrition, both in quality and in quantity. An excess of that requirement means, if it does not set up a salutary diarrhea, an accumulation of sub-oxidized material within the blood. It is always a serious error to attribute the weakness of an acute illness to a lack of nourishment; whereas it is simply due to depressed innervation. It is quite different from the weakness which results from long continued illness or from continued fasting.

It is, therefore, not only useless but positively injurious to try to force food upon a patient during

the first few days of an acute affection. At this period there is usually no desire, and often a positive disgust, for any form of food except water, and that is both a remedy and a food of the greatest value. It supplies all the pabulum needed during this period, and at the same time renders active aid to the system in getting rid of the effete and poisonous materials. A bountiful supply of pure cold water is worth more to the suffering one than all else that can be done. After a few days there is need of light, easily digested, easily assimilated diet. Carbohydrates and fats should be excluded as far as possible. On account of their great affinity for oxygen they rapidly exhaust the oxygenating capacity of the systems and thus seriously interfere with the oxidation of the proteids and of the metabolic products; the result of which would be an increase of the morbid elements within the blood.

Milk has long been a standard article of diet for the sick room and it is rarely contra-indicated. In conditions such as we are dealing with, it is often best to begin by giving whey, which being of lighter nutritive value may be given more freely; it is, too, a most excellent diuretic. It should be remembered that patients may live for months on milk alone or even whey, and not be much the worse for it. Other articles,—beef essence, beef tea, egg in small quantities, properly prepared (the white of an egg beaten up with the juice of a lemon and eaten slowly with a spoon is excellent), mutton broth (free from fat) gelatin preparations and the like, are also useful to fulfill the purpose which I have stated.

2. The best means at our command for the prevention of high temperature is undoubtedly the free use of cold water, both internally and externally. External applications of cold water are well borne in the majority of cases of rheumatism, and the relief which they afford is often most marked. If the temperature persistently keeps high, ice bags should be applied about the head and over the abdomen, one or two thicknesses of a towel being first laid over the latter. Ice bags placed over the abdomen are far more efficient in lowering temperature than when applied to any other part of the body. In scarlet fever nothing acts so efficiently as pouring cold water all over the body for ten, fifteen or thirty minutes at a time; or the child should have a cold bath at short intervals. Not quite so efficient, but often of much service, is the use of the antipyretic drugs. Great care should attend their employment in treating children on account of their toxic effects upon the heart. But wisely used they often do much good.

3. To quiet the action of the heart, and thus render it less likely to become the seat of inflammation, nothing is better than rest in bed and the use of small doses of morphia. I have met with no other remedy that can serve this purpose so well. It slows the heart, relieves pain, and quiets that disturbed state of the nervous system which is particularly prominent in febrile affections of childhood. To get the best benefit from it, the dose must be nicely adjusted to suit each case—one one-hundred-and-twentieth grain for a child five or six years of age, repeated every two hours, being generally sufficient; a smaller dose will sometimes do better; a larger one is often demanded. These prophylactic measures are of the greatest importance in preventing cardiac complications, whether the case be one of acute rheumatism, scarlet fever or any other of the various affections in which they are liable to occur. It matters not whether the antecedent disease be due to a disturbance of the metabolic functions of which the exciting cause is cold, or whether it be due to an infection of the system with microörganisms; the indication for their use remains the same.

These measures, too, for the prevention of endocarditis are precisely what are needed in the treatment of its acute stages. Special remedies for the primary disease will be given but it is not my province to consider them in detail here. The treatment of endocarditis after the acute symptoms have subsided is much the same as the treatment of the chronic form of the disease.

THE NATIONAL FORMULARY.

Read by invitation in the Section on Materia Medica and Pharmacy at the Forty-fourth Annual Meeting of the American Medical Association.

BY PROF. C. LEWIS DIEHL.
LOUISVILLE, KY.

"As the practice of pharmacy can only become uniform by an open and candid intercourse being kept up between apothecaries and druggists among themselves and each other; by the adoption of the "National Pharmacopœia" as a guide in the preparation of officinal medicines; by the discontinuance of secret formulæ and the practices arising from a quackish spirit, and by the encouragement of that esprit du corps which will prevent a resort to those disreputable practices arising out of an injurious and wicked competition; therefore, the members of this Association agree to uphold the use of the "Pharmacopœia" in their practice, to cultivate brotherly feeling among the members, and to discountenance quackery and dishonorable competition in their business."

Thus, Article I of a Code of Ethics adopted by the American Pharmaceutical Association at the meeting of its organization in 1852. Forty-one years have passed, and but very few of the members who formulated and adopted this Article are now among the living, but during all this time it has been the keynote for the conduct, not alone of the members of the American Pharmaceutical Association, but for reputable pharmacists throughout our land.

But, it may be asked, if this is true, if this Article of the Code of Ethics has been upheld by the American Pharmaceutical Association, by its members individually, and by reputable pharmacists in general, why do we find the shops of pharmacists flooded with preparations, the formulas of which are wholly or in part withheld, and which pass current and are prescribed under names not known or recognized in the text-books of the medical and pharmaceutical profession? It is a question not easily answered without stepping on some one's toes, an operation which I propose to perform with as light a step as is practicable and sufficient to the purpose.

Within so short a period as thirty years ago, the manufacturers of pharmaceutical preparations for the trade in the United States could be counted upon the human digits. Their products were confined to such as could not be profitably or conveniently made in the pharmacies, or that might be required in emergencies. With the growth and development of the country, these establishments naturally extended their trade, so that from their small beginnings they soon became a power that exerted a decided influence upon the methods of the pharmacies.

The success of these pioneers in the manufacturing

business, in its turn led to the establishment of new manufactories, and consequent competition, so that the profits of the business soon were seriously contracted. What more natural, then, than to look up new channels in which to increase the volume and profits of the business? So far the efforts of manufacturers had been confined to catering to the convenience and legitimate necessities of the pharmacists; these having been met, it became evident that a more potent factor than the good will and convenience of pharmacists had to be enlisted if reasonable success in extending their business was to be assured. And in this way it came about that the pharmacist was shelved, and the manufacturer addressed his efforts directly to the physician.

Beginning with an explanation of exceptional or improved methods for producing medicinal agents, attention was soon called to new preparations, excelling, either by reason of their potency, palatability or appearance, or these combined. From a list of perhaps half a dozen "Elixirs," so-called, the formulas for which were well understood and the common property of pharmacists, there was an annual increase amounting to dozens, the formulas for which were uniformly withheld, while their composition was, at best, only partially indicated on the label. Coated pills were introduced, with particular laudation respecting the quality and character of their coating; but soon the list of pills in common use was exhausted, and new formulas were invented or constructed in concordance with the prescriptions of popular physicians, until now there is no end to them. And so in due time came about compressed pills and tablets, tablet triturates and a host of other preparations, all of them, doubtless, useful and some of them—under the present practice—indispensable, but, in all, the result of the effort of their introducer to secure for himself the lion's share of whatever profit might be gained by their manufacture.

It is but common justice to concede to an inventor proper recompense for his time, trouble and expense, and also a reward for his invention. Our patent laws secure this to him, so far as his invention may meet with popular use and demand; but under our patent laws everything must, or should, be open and above board. A knowledge of how a patented article is made is public property, while it is the patentee's property to make, or to give the right to make it. And so A, for example, if he had succeeded in obtaining a patent for gelatin-coated pills, and declined to give consent to others, would have been the only manufacturer of gelatin-coated pills. But, insomuch as A did not secure a patent for gelatin coated pills, the process being known and easily executed by any one competent to make pills, why should the preference be given to B, when A, C and D can make and do make them just as good? The point made is simply for the sake of argument, and applies with equal force to all preparations, the formulas of which are authoritative or that are honestly offered under honest titles.

That this is the correct view is evidenced by experience and practice; for it is becoming more and more the practice of prescribers to omit the designation of the manufacturer when prescribing preparations of authoritative or well-known composition, the prescriber leaving the responsibility of quality to the dispenser. Manufacturers were not the last to recognize this tendency; on the contrary, they found that unless resort was had to some new expedient, they would soon again be in their original position; that is to say, directly dependent upon the pharmacist for the demand for their products. And we must look for an explanation for this again to the effect of competition, for manufacturers have increased almost as fast as new preparations. Not alone that many separate manufacturing establishments have been opened; the shrinkage of profits in the wholesale drug business has prompted almost every wholesale house to open a laboratory for manufacture, in connection with their regular business. All of these, with few exceptions, have accepted and adopted the new expedient, which consists in introducing some preparation of popular drugs under a specific trade name. A palatable or presentable preparation having been secured, it suffices to give it a name, derived from its most prominent constituent, or from the specific term applicable to its medicinal use, or to prefix the manufacturer's name to a more or less abbreviated title of the preparation, and the manufacturer has a product which must be purchased from him and can not be substituted with impunity by the product of another manufacturer. To the prescriber it appears to make no difference whether the composition of the preparation is clearly indicated in the label, or not, and generally it is not; the "essential principle" of so many grains of this, that, or the other, or of a teaspoonful of codliver oil, certainly do not give us a clear conception of the preparation before us. In point of fact, many of these preparations are simply such as are commonly designated as "patent medicines," though they may by courtesy be called "pharmaceutical specialties."

I believe that I give voice to the unanimous sentiment of the reputable pharmacists of our country, when I say that it would be presumptuous for me to call attention to any single preparation, or class of preparations, that physicians do, and ought not to prescribe. It is not the concern of the pharmacist what is prescribed, so long as he is convinced that the prescriber has not made a palpable error in his prescription. But I am sure that I act within the bounds of propriety when I say that the modern tendency of prescribers to designate the product of special manufacture in their prescription, while perhaps simplifying the prescription, has complicated the business of the pharmacist to such an extent as to become a serious burden. That this burden was felt by pharmacists everywhere was shown by the adoption of formulas for various non-officinal preparations in common demand by a number of local pharmaceutical associations—some of which, indeed, were called into existence by this very exigency—and I could mention several localities in which the then current "pharmaceutical specialties" were knocked completely out of the field and replaced by the preparations proposed by the local associations. This success, however, was only temporary; partly because of the efforts of manufacturers to recover the ground lost, by the introduction of trade-marked preparations, and largely by the circumstance that the preparations adopted by the different local associations, though identical in name, were not identical in their formulas. And so it gradually came about that the local associations looked to the National Association to bring order out of chaos, the result

being the publication of the "National Formulary," in 1888, by the American Pharmaceutical Association. The "Formulary," in its present, unrevised condition, embodies formulas and definitions for 435 preparations, covering most of the non-officinal preparations in popular demand, and replacing many that are now popularly prescribed under special trade names. Among these formulas may be enumerated eighty-six for elixirs, thirty-four for syrups, ten for emulsions, thirty-nine for liquors or solutions, twenty-six for powders, including fourteen salines and effervescents, seventeen for mixtures, twelve for wines, thirty-one for tinctures and thirty-three for fluid extracts. It is within my personal knowledge that many of these formulas have stood the test of time in the localities in which they had been originally introduced, and that none of them were embodied in the work until they had been subjected to the most rigorous tests; so, that, even as the work now stands it merits the confidence of physicians, the more particularly since the formulas are explicit, and are easily followed by pharmacists even of moderate ability. With the advent of a new "Pharmacopœia," it will become necessary to eliminate some of the formulas; to keep pace with the new preparations, specialties and remedial agents, it will be necessary to add others, and the "Formulary" is therefore now in the hands of a Committee of Revision, who have made a preliminary report at the last meeting of the American Pharmaceutical Association, and will probably make a final report at an early day. The result of investigation made so far by this Committee confirms the reliability of the formulas with few exceptions, and those of no importance. I would therefore earnestly ask that physicians give these formulas their favorable consideration, and that the AMERICAN MEDICAL ASSOCIATION take such action as may be conducive to the adoption and use of the "National Formulary" by practicing physicians throughout the land.

DISCUSSION.

DR. DIEHL, in answer to question by the Chairman, said that in his opinion some of the newer drugs and preparations will be introduced in the next "United States Pharmacopœia." This will include such preparations as various elixirs, and certain drugs of recent introduction, but will not include patented medicines or trade-mark preparations. There will be no radical change, except in relation to weights and measures. The metric system will be adopted. In the formulæ for making tinctures, parts by volume will be substituted for parts by weight. The preparation of the drugs opium, cinchona and nux vomica will be provided with methods of standardization.

Speaking of the "National Formulary," DR. DIEHL said that it had proved a financial success. The first edition consisted of five or six thousand, and since that time at least five thousand more have been printed. He would like to see the book adopted as a text-book by the medical colleges.

DR. WOODBURY spoke of an instance in his own knowledge where a pharmacist was using the "Pharmacopœia" of 1870 five years after the issue of 1880 had been published. Owing to the radical changes made in the last "United States Pharmacopœia" in regard to the strength of opium preparations, etc., such neglect upon the part of pharmacists was culpable. In his opinion, the use of the "Pharmacopœia" would never become general until it was introduced into the medical and pharmaceutical colleges as a text-book.

DR. STEWART said that he was taught that pharmacy was a liberal profession, the same as medicine, and the adoption of the "National Formulary" and "United States Pharmacopœia" as text-books would favor that end.

A committee was then appointed, consisting of Prof. Good and Dr. Stewart, for the purpose of drawing up a resolution recommending the adoption of the "United States Pharmacopœia" and the "National Formulary" as text-books in medical and pharmaceutical colleges. This resolution was adopted by the Section and sent to the general session, where it was well received and adopted:

Resolved, That the AMERICAN MEDICAL ASSOCIATION recommend that the new "United States Pharmacopœia" soon to be issued, be at once practically adopted by physicians in prescribing and pharmacists in compounding. It also advises the general adoption by physicians and pharmacists of the "National Formulary," issued by the American Pharmaceutical Association, and that the leading medical and pharmaceutical colleges adopt these works as text-books.

TRAUMATIC NEUROSES IN COURT.

BY L. BREMER, M.D.
ST. LOUIS, MO.

Of all the diseases which within the last ten years have preëminently engaged the attention of the medical world, there is none that deserves more interest and is of greater practical importance, than that group of nervous disorders which have been styled the traumatic neuroses. It is especially since the meeting of the Tenth International Congress held at Berlin in 1890, that this question has occupied a prominent place in medical thought and discussion the world over. The somewhat acrimonious debate on that occasion, not altogether free from personal antagonism, had as an immediate consequence, the effect of stimulating renewed study and producing a flood of literature on the subject.

Oppenheim's book on the traumatic neuroses had not only renewed or intensified the interest, but also excited widespread contradiction.

Oppenheim, in contra-distinction to Charcot, who classed all neuroses following accidents as hysteria, tried to demonstrate in his book that there is a type of disease quite peculiar in its manifestations particularly on the part of the nervous system, a type which is only met with after injuries, and railway injuries in particular.

The opponents of Oppenheim have contended that he described a disease which he called the traumatic neurosis, meaning thereby a well defined nervous disorder, characterized chiefly by concentric narrowing of the visual field, anesthesia or hyperesthesia, irritability of the heart and certain mental anomalies.

This disease as such, they claim does not exist. There are traumatic neuroses, however, resulting from injury coupled with shock, for instance, hysteria, neurasthenia, chorea, epilepsy, shaking palsy, etc. These neuroses constitute a family; they are more or less closely related to each other.

Most frequently among these traumatic neuroses are found hysteria and neurasthenia or a combination of the two, hystero-neurasthenia.

Whilst Oppenheim claims that predisposition and heredity are extremely rare and that the victims to his traumatic neurosis were ordinarily robust men, before the accident, Charcot and with him the French school, assert that the injury is only the provoking agent of a disease which exists in a state of latency. Without the accident the person might have con-

tinued in good health for the rest of his life; the injury and the mental shock, however, changed a dormant into an active trouble.

The French claim that Oppenheim's cases are simply hystero-neurasthenia, i. e., graver cases of post-traumatic neuroses, and that they do not represent specimens of a clinical entity.

The drift of opinion in neurological circles is in this direction, and Oppenheim, himself, seems to have made some concessions to the French school of late.

In France, traumatic hysteria seems to be the prevailing form of the neuroses under discussion. With us, traumatic neurasthenia is certainly the predominant form, the difference being due to racial peculiarities.

The importance of these lesions, considerable though it is from a clinical point of view, has been materially increased of late years on account of the ever increasing frequency of damage suits resulting from them.

Owing to the great discrepancy still existing on the nature and import of these affections and the diametrically opposite views given by the physicians of the litigating parties, these suits generally form very knotty problems for the jury to solve.

The difficulty in the way of a righteous verdict lies in the very nature of the affections under discussion. If there is a visible injury, a fracture for instance in any part of the body, or lesion of the integuments or the deeper tissues, it is to the layman a comparatively easy matter to comprehend how such an injury may be followed by transient or lasting nervous symptoms, which may constitute, as they do in the traumatic neuroses, the chief and prominent sequelæ of the injury. This difficulty is increased by the too frequent occurrence of exaggeration or downright shamming on the part of the injured, in cases where damage suits are brought.

The trouble will, I am afraid, go on increasing owing to the spread of knowledge on the subject among the masses of the people. To this dissemination of knowledge is to be added the prevailing tendency to fleece the soulless corporations; on the other hand, the real victim to a traumatic neurosis will have a difficult task of convincing a skeptical jury, which through doctors and lawyers have been made acquainted with the great prevalence of simulation of nervous disorders.

Unfortunately the symptoms of the disease are in the vast majority of cases of a subjective nature. Hence very frequently the veracity of the claimant supported by the testimony of a physician, viz.: that such and such symptoms may result from the alleged injury, form the exclusive evidence in the case.

One of the commonest complaints of the sufferer from a traumatic neurosis is pain. How can this be demonstrated? If we possessed an instrument by which we could gauge the pain, an algesiometer, analogously to the æsthesiometer, matters might be considerably simplified. As it is, pain is a relative and indefinite quantity. Mucius Scævola puts his hand into the burning coal without flinching. Charles XII smokes a pipe whilst the surgeon removes by deep incisions a bullet from his leg, but the impressionable weakling will convoke a medical faculty for an ordinary belly-ache.

Almost equally difficult of determination is the degree of anesthesia or hyperesthesia which are so frequently complained of by such patients. It is a very easy matter to detect contradictory statements in regard to the intensity of anesthesia; and a person must not be set down as an impostor when the result of the examinations of one sitting does not tally with that of a preceding one. The degree of attention and the varying condition of the patient himself are responsible for discrepancies.

On the whole, it may be stated as a general proposition that a claimant for damages is not to be looked upon as an impostor by the examining physician, because contradiction in regard to his present condition and that of the past are discovered. For a defective memory and an instability of the perceptive faculties are among the commonest symptoms of the traumatic neuroses. Again, if the case be one of traumatic hysteria the phenomena are often almost incredible, especially to him who has no neurologic or psychiatric training. A knowledge of this latter branch of medicine is above all requisite for the correct interpretation of the symptoms and behavior of the traumatized neurotics. For it is not the peripheral nerve, nor the spinal cord which is principally affected in these neuroses, but the mind. It is a psycho-neurosis which the examining physician has to deal with. This mental anomaly, the hypochondrio-melancholic tinge which almost invariably is met with in the traumato-neurotics, has been used as an argument against the hysterical nature of the trouble, since the hysterics have generally an air of hopefulness or indifference about them and are notorious for their abrupt changes from one mood to another. But it is as strange a fact as it is incontestable, that the male hysteric is morose, despondent, embittered, quite in contrast with the female victim of the disease.

Taken for granted now, that a certain proportion of the traumato-neurotics are afflicted with hysteria or in the worst cases hystero-neurasthenia, it becomes apparent at once why it is that the symptoms presented by such a case seem so incredible and out of keeping with what is ordinarily observed in injury and disease. Expert examinations as to eye, ear, heart, lungs, etc., and the tests usually employed to unmask imposition have, as a rule, a very bad effect on such patients and not unfrequently, what has been a simple neurosis at first, has by injudicious, overzealous activity on the part of the examining physicians, been converted into a psycho-neurosis of a grave character. It will not do to tell such a patient that he is *only* hysterical and that, being a man, he has no business to be so. Hysteria may be a grave disease, and male hysteria, especially that due to injury is apt to be particularly obstinate and intractable. The same holds true of traumatic neurasthenia which is generally less accessible to treatment than the non-traumatic variety.

In all these conditions now, there is a general tendency to exaggeration of the symptoms. It is physiological to the disease as it were, and ought not to be put down as an unfailing sign of shamming with the intent of increasing the award of damages.

We ought always to bear in mind, as stated before, that the disease is psychogenous in character and that its proper diagnosis belongs therefore to the domain of the psychiater and neurologist. And even he is apt to be misled in cases of this class, unless he has paid strict attention to the literature on this subject for the last four or five years, during which a

considerable stride towards better and more exact knowledge has been made.

It is not my object in this paper to describe traumatic neuroses in all their details, their fundamental and secondary symptoms. My intent and purport is, to point out the difficulties surrounding this matter, especially in cases of litigation.

The exaggeration of originally existing, and the acquisition of new symptoms, through examinations made by a number of physicians, each of them asking about, and thereby suggesting some new symptom generally or exceptionally met with in traumatic neuroses, has led to quite a new nosologic species of morbid phenomena, the litigation symptoms, so-called. To reduce them to their proper level and to eliminate them from the legitimate clinical picture, is one of the most difficult tasks of the examining physician.

As a rule, patients who have their claims in court, get worse mentally and physically. The worry and anxiety which even the healthy and vigorous individual has to undergo in a lawsuit, which is to decide on his financial future, is a particularly hard strain on the nerves of the traumato-neurotic.

The excitement incident to litigation renders his case progressively worse, and many a claimant would have fared much better in health and happiness, had he settled at a reasonable figure instead of undergoing the harassing wear and tear of a lawsuit. Not the most liberal award will repay such a man for the often deep and lasting damage his brain has sustained from prolonged litigation.

On the other hand, it is often astonishing what amount of elasticity and recuperative power is exhibited by the successful claimant. Nowhere has the gold cure celebrated greater triumphs than on the field of traumatic neuroses, if administered by a benevolent jury. There dwells a familiar figure in the memory of those who frequently have to deal with these cases, of the neurotic cripple, who has to be assisted to ascend the witness stand and gives his testimony in a feeble and broken voice, an utter, pitiable wreck, physically and mentally, who a few weeks later is capable of carrying the weight of several thousand dollars in silver, the award of damages, without any apparent difficulty.

Again cases are on record where successful litigants openly bragged after having secured their booty, how they duped the doctors, judge and jury.

Such occurrences are not frequent, but their reality is incontestable. The unjustifiable benefit which one undeserving individual derives through such practice necessarily redounds to the detriment of the deserving victim.

In order to exclude any possible errors of diagnosis, the aim of all original investigation of the subject has been to establish the objective signs of the neuroses, and, if possible, such symptoms as can not be simulated and which are characteristic enough to exclude other diseases. Unfortunately there is no objective sign which can not be successfully simulated by one who through association with real traumato-neurotics has become sufficiently familiar with the leading symptoms. The only exception seems to be the concentric narrowing of the field of vision, so much insisted upon by Oppenheim,[1] the acceleration of the pulse, especially on pressing the painful spots, as a rule situated at one or more of the spinous processes, (Mannkopf's sign) and the difference of the pupil, the one on the affected side (in cases of hemianesthesia or hemiplegia e. g.) being larger than the other.

But it may be broadly stated that all these symptoms are not characteristic of the traumatic varieties of hysteria, neurasthenia, and hystero-neurasthenia, that they are as frequent in the non-traumatic forms, hereditary or acquired, and that as a matter of fact they are observed in quite a variety of other neuroses, and chronic affections in general.

It would devolve, then, on the defense to prove that the person suing for damages was neurotically tainted before the accident, which, of course, is generally a matter of difficulty and impossibility, since every claimant will insist on his previously perfect health; and there are scores of witnesses to prove it. My experience is that in quite a number of such patients a preëxisting neurasthesia could be elicited. Of course, this name does not figure in the patient's previous record; as a rule the terms, "biliousness" and "dyspepsia" are named, which generally are nothing more nor less than symptoms of genuine neurasthenia.

On the other hand, it devolves on the examining physician to establish as to their proper value, the symptoms observed in the claimant, and to find out how much of them is due to the accident and what may have existed before. A very difficult task indeed.

To illustrate the obstacles besetting the subject, especially when complicated by litigation, I shall briefly mention a few of the cases with which I have had personally to deal.

I believe that one of the most curious instances in forensic medicine, and thus far a unique one, where the problem of the causation of diseases was involved, is that of a woman who, several years ago claimed that she had been permanently injured while ascending in an elevator of one of the large drygoods houses of this city. She contended that the machinery had come to a sudden stop, throwing her forward and causing her to land on her head. Since that moment she was paralyzed in her lower extremities. The damages were laid at $20,000. The defense, however, convinced the jury that claimant had had hysteria all her lifetime, that the alleged injury received by the sudden stoppage of the elevator, which could not be proven, was in reality one of the attacks common to hysteria, usually called hystero-epilepsy, and that a disease remained which has the uncommon and formidable name of hysterical "astasia-abasia," but which is in spite of this name a reality. The jury found against the claimant.

In another instance a railroad was sued for $20,000 damages by a traveling salesman who had jumped from a train to avoid the effects of a collision. Since that time, or at any rate several months later (as is often the case in traumatic neuroses) he had evinced a number of neurasthenic symptoms which he claimed were caused by the accident. The train had moved at the time this occurred with a velocity of six to eight miles an hour; in jumping the plaintiff had landed on a heap of gravel and had fallen on his knees, bursting his pants at that point. There had been no injury, except an insignificant abrasion, nor had anybody else been injured, not even the engineer, who remained on the engine at the time of

[1] According to Charcot this is one of the most valuable, though not constant, stigmata of hysteria, whether ordinary or traumatic.

the collision (the engine had been damaged only to the amount of one hundred dollars). The defense succeeded in convincing the jury that the injuries were too insignificant to be looked upon as the cause of the neurasthenia (despondency, rachialgia, inability to work, etc.), from which the plaintiff was undoubtedly suffering, there being data enough in the previous history of the patient pointing to a very strong neurasthenic diathesis.

In the third case, which may be briefly mentioned, a man, known to be an alcoholic of a pronounced type, had been struck by the beam of the barrier at a railway crossing through the negligence, it was alleged, of the watchman in attendance. The pole which, owing to the counterweight at one end did not descend with great velocity, grazed the man's head, who stumbled, but did not become unconscious. There was not the "traumatic narcosis" in the language of Bergman, so ominous an occurrence, as a rule, in accidents of this nature. The man, after the accident, if it was such, visited several bar-rooms and had later on leeches applied to the site where the beam had struck the head. Two days later a surgeon examined him, after he had returned home (the accident befell him while on a visit to this city) found nothing to indicate an injury either to the scalp or bone, not even the evidence of a contusion. The only lesion visible was the leech bites. This man soon after the injury developed symptoms of mental alienation. The symptoms were such as are generally observed in alcoholic insanity. His friends, however, thought that the disorder of his mind was referable to the injury sustained from the pole, and after he had partially recovered, he sued the company, the proprietor of the barrier where the accident had happened. It was learned that the medical experts who were to appear for plaintiff hinted at a depressed fracture as the cause of the mental trouble. The claim of damages was for $20,000. The case never came to trial. It was compromised at $1000. It was plainly one where the trauma did not play the least of a pathogenic rôle.

These three cases taken at random from the cases of my own experience show the importance of hysteria, neurasthenia and alcoholism in the development of traumatic neuroses and psycho-neuroses. They demonstrate the importance of the diathesis or pre-disposition and reduce to its proper value the injury, as simply the provoking agent of a dormant trouble. The task of the examining physician will be to ascertain in the first place the gravity of the existing nervous disorder, and next the probability or improbability of a connection as to cause and effect between it and an alleged accident.

If anywhere a reform is needed in the administration of justice, it is in the suits for damages. Nowhere in the whole machinery of the law are there more farcical performances found than in the courts where damage suits are tried for personal injury; and nowhere is there such an opportunity for the profession to exhibit their chronic disagreement, as on the question of traumatic neuroses. As a rule there are two opposing sets of doctors. One is trying to prove to the jury that the plaintiff is a damaged man and incapacitated for life; the other set will try to prove that there is not much the matter with him, that he is exaggerating or putting on and feigning disease which does not exist. This war of experts who as a rule are not familiar with even a rudimentary knowledge of the neuroses is generally a source of great amusement to the lawyers and the jury, but does not redound to the good name of the profession; much less is it calculated to help the jury distinguish between the right and wrong. Ready wit and repartee is too often counted for knowledge and the testimony of an ill-informed tyro may outweigh that of the experienced physician. Not until trained and trustworthy experts are appointed by the state to pass on doubtful cases and instruct the jury in accordance with their finding, will there be an improvement in the defective and erroneous methods of arriving at verdicts in cases of traumatic neuroses claiming damages. Under existing conditions the true medical expert is generally hampered by counsel of the opposing party in his efforts to elucidate the case. The prevailing custom that only the experts for plaintiff are allowed to examine his person is certainly not calculated to help the jury in their effort of reaching a just verdict. The fact is that there is too much hedging and dodging done by medical experts, to help the side for which they happen to be engaged. They thus run the risk, or rather are necessarily exposed to the danger of turning advocates where they ought to be impartial witnesses.

Quite reprehensible is the practice which has been actually resorted to by some experts, of going into a lawsuit for damages on the plan of sharing in the profits resulting from the verdict. This is lowering the already low standard of our profession. What may be legitimate and proper for a lawyer to do under such conditions, is utterly unpardonable in a physician.

Some facetious observer has divided prevaricators in court into three classes; liars, blank liars and experts. Let us try to help to get the medical experts excluded from this category.

INFECTION FROM THE MOUTH.

Read in the Section on Dental and Oral Surgery, at the Forty-fourth Annual Meeting of the American Medical Association.

BY E. L. CLIFFORD, D.D.S.

CHICAGO.

Each and every day brings the thoughtful student more and more to face the fact that the scientific world is progressing; and he who has kept *au courant* with the literature of medicine must acknowledge that the results of such investigations as are now being pursued have, for a principal object, the unfolding of the prime factors in the causation of diseases, with a view to their prevention.

Recent investigators have sought to open up new fields; they have tried, and found wanting, in many instances, the beaten track, and their efforts tend to the opening of new lines and a practical departure from the pathology of the past, with an ever increasing tendency to lead us to cultivate and entertain broader, or at any rate less narrow views, as to the elements which play an important part as etiologic factors in the causation and origin of diseases.

It is not necessary, or even advisable at this time, to recapitulate the theories of the past, and our aim will have been attained if we can take a few profitable glimpses at the newer fields, allowing the lines of thought and inquiry which may suggest themselves to each to furnish a basis for intelligent discussion.

Much has certainly been accomplished in the last two decades in the field of etiologic pathology, still

much remains to be done, and upon the shoulders of some of the bright lights in our specialty, and this Section, will certainly fall a part of that task.

Investigation and experimentation in the past have been unable to specify and establish any *single* thing as a final cause of disease; and it has been said by one, eminent in our current literature, that he knew of no disease which acknowledged a *single* cause. Our work, then, if this be true, must be to search for and find out the many and ever varying factors or conditions which, as antecedents, combine to produce disease; and I am of the opinion that to the physiologic agencies within our bodies during life we will find many competent factors.

The researches and expositions of Gautier, Peter, Brown and Brunton, confirm our belief in the poisoning or intoxication of the animal economy with its own products. These eminent physiologic chemists traced and pursued their investigations from two general aspects, and Aitken in his excellent review of their work has classified them under two heads: 1, from a chemic and physiologic, or bio-chemic standpoint; and 2, from a clinical or pathologic. From the first standpoint the fact was established that in dead animal tissues, processes of putrefactive decompositions set in, by which certain alkaloids are elaborated from the proteid substances, and these alkaloids were designated by the late Selmi of Bologna, as "ptomaines." Gautier, however, further showed that in the *living* animal tissues, and that by virtue of their vitality, certain other alkaloids are elaborated, which are analogous to the ptomaines and these he has named "leucomaines." But, still further, in addition to these facts, he has demonstrated that in the living animal economy there are elaborated certain azotized uncrystallizable substances which are as yet undetermined, and which he has called "extractives" or "extractive matters," and which Aitken states are quite as unknown as the x, y, z's of an algebraic formula.

The nature of these extractives, then, remains a mystery, but this much we are told of them; that while we are assured that the ptomaines are toxic, and that the leucomaines are also toxic, these unknown extractives are more toxic or poisonous to the system than either. Different alkaloids have been obtained from different sources, both animal and vegetable, and as long ago as 1820, Kerner pointed out the resemblance between the symptoms of poisoning by the animal and vegetable alkaloids. Experimentation since has confirmed the theory. "Zuelzer and Sonnenschein obtained, both from macerated dead bodies and from putrid meat infusions, small quantities of a crystallizable substance which exhibited the reactions of an alkaloid, and had a physiologic reaction like atropin, dilating the pupil, paralyzing the muscular fibers of the intestines and increasing the rapidity of the pulse." V. Anrep obtained an alkaloid from poisonous fish, and Vaughan an alkaloid from poisonous cheese, but "Gautier, Etard, Brieger and others have given precision to the data previously acquired, and added largely to the varied and careful examinations of cadaveric tissues;" "they forced the conclusion that during putrefaction of nitrogenous animal material there are formed organic bases, fixed or volatile, presenting for their chemic and physiologic properties, the closest similitude to the vegetable alkaloids."

In fact, while it was at first supposed that these animal alkaloids differed in their nature from the organic alkaloids formed by vegetables, and various reactions had been given to distinguish them, Brieger appears to show that the distinction can be maintained no longer; but that the animal and the vegetable alkaloids are similar in their chemic constitution; that they are both products of albuminous proteid decompositions, and that some, at least, of the so-called ptomaines are identical with vegetable alkaloids. Hence, Dr. Brunton seems justified in regarding alkaloids "as products of albuminous decomposition, whether their albuminous precursor be contained in the cells of plants and altered during the process of growth, or whether the albuminous substances undergo decomposition outside or inside the animal body, or by processes of digestion, as by organized ferments." Aitken also states that it has been shown that the alkaloidal products formed by the putrefaction of albuminous substances vary according to the stage of decay at which they are produced. At first, the poisonous action of the ptomaines may be slight; but as decomposition advances the poisons become more virulent, while after a still longer period they become more broken up and lose to a greater extent their poisonous power. (Brunton.)

"In addition to these alkaloids obtained by Brieger, a number of poisons have been got by other workers from decomposing articles of food, or from dead bodies, and even from portions of healthy animal bodies, and although these may not have been obtained in the same state of purity, not have had their chemic constituents so well defined as Brieger's, they are still as unknown extractives, x, y, z's of great interest and importance."

Experimentation has even shown that the primary products of albuminous decomposition of digestive ferments, such as peptones, are poisonous; and that pepsin will split up albuminous substances still further; and Dr. Brunton very aptly sounds the tocsin of caution against the extreme and indiscriminate use of the various digestive ferments, and of the many varied artificially digested foods which have now become common. Consequently it behooves us to study the products of albuminous decompositions as a matter of much practical importance, not only as regards pathology, but as regards therapeutics. Now it would not be possible to exclude these animal alkaloids from the general economy, for Gautier has proven that they are a necessary product of *vital physiologic processes*. His experiments show "that about four-fifths of our disassimilations are the result of transformations within the body, comparable to the oxidation of alcohol; and that the remaining one-fifth of the disassimilations are formed at the expense of the living tissues themselves, "free of all demands on foreign oxygen." In other words, "a fifth part of our tissues live after the manner of ferments, that is they are anerobious or putrefactive as to their life." "Hence the possibility of alkaloids being thus formed within the living organism, independent of bacterial fermentation is quite within our conception."

Bio-chemically, the same author states that much has been proved, and he does not doubt that poisonous alkaloids are continuously formed in healthy men and animals by the decomposition of albumen in the intestinal canal, during the process of digestion, or in the blood and tissues generally by the metabolism which occurs during the functional ac-

tivities of life. He believes that a considerable production of alkaloids takes place in the intestines, both when the digestive processes are normal, and more especially when they are disordered. Were all the alkaloids to remain within the body, poisoning would undoubtedly ensue, and Bouchard makes the statement that the alkaloids formed in the intestines of a healthy man in twenty four hours would be sufficient to kill him if they were all absorbed and secretion stopped. Another statement, made by the same author, tends to show the power of these agents as an etiologic factor, and which at this time will probably not be questioned: "That the nervous disturbance which occurs in cases of dyspepsia is due to poisoning by ptomaines;" "that they augment notably in the course of certain maladies,—in typhoid fever for instance."

Now, as to the clinical, pathological and practical aspects,—according to the different sources of poisoning, or intoxication, as it is technically called, there are correspondingly different indications, signs or symptoms which Dr. Brown classifies as follows: 1, poisoning by the extractives is attended by *hyper*thermia; 2, poisoning by "animal alkaloids" is accompanied by *hypo*thermia; 3, a combination or succession of *hyper*thermic and *hypo*thermic phenomena may become manifest, according to the combination or alternation of poisoning by the deleterious physiologic products, or their antagonistic action. Some contradictory evidences of the above are accounted for as follows: "Where 'extractive matters' accumulate in the blood we detect hyperthermia; on the other hand, if 'alkaloids' accumulate, we have hypothermia, while if the two factors coëxist, they may neutralize each other, or become antagonistic in their action, so that temperature may remain stationary or normal. But should one or the other predominate, immediately the scale is turned, so that some variation may be noted. In this auto-infection, this spontaneous or self-infection, of the living organism by the alkaloids and extractives of its own formation there is no question of quality, but simply one of quantity to be considered, by reason of the essential physiologic source and action of the poison. In other words, the healthy living organism may become poisoned (more or less slowly) by the accumulation within itself of deleterious substances normally elaborated, but imperfectly or defectively eliminated. Hence the slow and insidious onset of much ill-health, and from which recovery is correspondingly slow." Now, in what way does this auto-infection of the system take place? Brown tells us that it can only be understood and explained by the mode in which we regard the phenomena of life. Life is a ceaseless decay with a ceaseless repair. "Normal health is conditioned on an incessant formation, transformation and elimination of the effete or old organic materials which must give place to new. It is this effete material, which therefore, represents a series of partial deaths, and which, as the result of organic functional operations, constitutes life, during which the tissues and organs in the processes of their metabolic changes perform a constant function of disintegration, fabricating during these processes those alkaloids and extractives, those x, y, z's of pathology which must be regarded as veritable "*physiologic ashes*," (Brunton) resulting from the processes of combustion of the elements of organic tissues."

Having progressed thus far, and established the fact, we think, of the presence and power of these poisonous agents, let us for a while cast a glance at the oral cavity of man, and see if any conclusions can be drawn as to the part it plays in promoting or preventing the formation of these factors in the causation of disease.

1. We will claim that no portion of the organism is of more importance, or is more active as a veritable chemic laboratory, than the mouth. It is established, that in the processes of putrefactive decomposition, certain alkaloids are elaborated from the proteid substances. We all know that in the cleanest mouths certain portions of these proteid substances will remain, as they are ingested with the food we take, as well as the water we drink, and the air we breathe. We know also that in the cleanest and healthiest mouths, absence of bacteriologic influences is but an utter impossibility, and that these microörganic agencies, furnished as they are with the proper media or food, conjoined with a suitable temperature and abundant moisture, make the mouth one of the best incubators that can be imagined. If this be so in mouths that have been no strangers to proper hygienic influences, how much more strongly is the fact established of the influence of this territory, when carelessness and neglect have been a predominant feature? And, if we accept the theory of Aitken that these alkaloidal products vary as to their poisoning power according to the stage of decay at which they are produced, how important is it that these hygienic influences be enjoined and enforced. Then again, accepting the dictum of Gautier, that these animal alkaloids can not be excluded from the general economy, and that they are even necessary as a product of vital physiologic processes, it certainly becomes the duty of that branch of medical science to which the very entrance of the digestive tract is allotted for control and treatment, to see to it that contaminating influences are eliminated. Again, if the possibility of the formation of these animal alkaloids is acknowledged without the aid of bacteriologic fermentation, as shown by Gautier, how much more deleterious must be their effects, and how much greater must be their production when conjoined to and assisted by these physiologic agencies. If an abnormal amount of these poisonous substances are produced within the intestines when in any way disordered, how much more reasonable to conceive that the manufacturing capacity of the mouth is greatly increased, when a condition that might be termed absolute filth is no stranger to the eye of the observant dental practitioner. If the amount of these agencies formed in the intestines of a healthy man in twenty-four hours is sufficient to kill him if absorbed and secretion stopped, it will require no great stretch of your imagination to realize that enough poison could be taken from the mouth of the average dental patient to kill a small army of inoculated subjects if properly applied. Let the physician who doubts this statement recall the condition of wounds, and ponder over the difficulties of his prognosis when called to attend a traumatism caused by the human bite. The conclusions of Dr. Brunton will also go far to account for the thermal changes which take place and accompany these traumatisms, when viewed from a clinical or pathological standpoint. Miller establishes well the part played by the human mouth as a

generator of microörganic life, and his testimony is corroborated by other investigators; not only are large quantities of the animal alkaloids produced within the intestines and other portions of the alimentary tract, but large quantities are swallowed with innumerable bacteria which have already been produced in the mouth, and, as stated by Miller, they give rise to local and general disorders of the most serious nature, produced partly by the direct action of the microörganisms, and their products upon the teeth and the mucous membrane of the mouth, partly by swallowing large portions of bacteria, partly by carrying them into the lungs, particularly in cases of violent inspiration and finally by their obtaining an entrance into the blood or lymph vessels in various ways, such as by a breach in the continuity of the mucous membrane brought about by mechanical injuries (wounds, extractions, etc.) through the medium of gangrenous tooth pulps, which usually lead to abscess at the point of infection; sometimes with secondary septicemia and pyemia with fatal termination by resorption of poisonous waste products formed by bacteria; by the inspiration of particles of slime, small pieces of tartar, etc., containing bacteria, and by contact with the oral and pharyngeal cavities, whose power of resistance has been impaired by debilitating diseases, mechanical injuries, etc.

The very antechamber of man's vegetative existence, the very portal of the human body, furnishing as it does a most excellent nursery for these etiologic factors, has not received from the general profession of medicine, within the past, that attention which its importance has deserved; but, thanks to the work and investigations of some of the members of our specialty, the physician can no longer ignore these factors and feel that he has done justice to himself and the patient who has so confidently placed himself under his care. The results of the last few years have proved that if many of the diseases whose origin is enveloped in mystery could be traced to their source, they could be found to have originated within the oral cavity. And, as to the danger of such diseases as do follow from infection traced directly to the mouth, it seems there could be but one thought, when we reflect that out of a carefully prepared table of 149 cases by Miller, there resulted 50 deaths, 19 cases of syphilis, 2 cases of blindness and 2 cases of a loss of a part or the whole of one of the maxilla.

Most of the work which has been done up to this time (with the exception of that by Miller) has been with a view of attracting the attention of the dental specialist to infection which has been carried *into* the mouth from without, resulting in local manifestations which would naturally come under the supervision and treatment of the dentist. Miller has opened up, and is cultivating with skill and determination a new field of research, and it seems to be his object, as it is mine at this time, to attract the attention of the general practitioner to infections which are carried *from* the mouth and are planted in such soils as will prove favorable to their future germination and growth, hence, proving an obstacle in the path of him who would assume to treat these pathologic lesions, without due appreciation of the important part these agencies and this location play as factors in etiology. It would not be difficult to convince the observant dentist of the truths here implied; it would only be necessary, were that our object, to ask him to recall from his every-day experience ample facts to substantiate the position. He has seen many times the general health of his patients vastly improved by a proper care and attention of the mouth. He has studied, as a specialist, the chemic powers of decayed teeth, vitiated and poisoned secretions and fully appreciates their power and influence, but I am forced to the belief that the physician of the past has either wilfully or ignorantly ignored the important part this portal plays in the aggravation of diseases, or as a preventive of cure. And this thought is only enhanced and enlarged by the recent practices of the more observant and faithful, in calling to their assistance the aid of the competent orist, in assisting him to reëstablish physiologic perfection.

To make the attempt to enumerate and to classify the different ailments which are either caused or aggravated by the unhealthy and unwholesome condition of the mouth, would be too great a task for one paper, if it were necessary, but it is not. Miller has done and is doing this work for us, and it is our province to assist as much as possible in bringing to the notice of the profession the excellence of his work and the importance of his conclusions. At such times as this, we can but generalize. Every physician of experience has often, no doubt, found himself in the dilemma of not being able to account for the cause of many cases in practice—and while I would not have him look to the mouth as the harbinger of all these causes, I would ask his attention to that sphere, as a possible, and I might say, a probable source in many cases.

There is no doubt that the nervous system in many instances, and by very remote manifestations, is often injured to an alarming extent by the mechanical or chemical irritation emanating from an oral organ. The alimentary tract, we know, is often deprived of the privilege of doing its proper duty by contaminations implanted into the first bolus of food, started on its course through a filthy and poisonous mouth, and added to the chemic contamination may well be mentioned the mechanical, which in cases of malocclusion, tender and sore teeth, or edentulous mouths prevent a proper mastication of food, entailing upon the stomach an office and a duty never designed by nature. This overwork of the stomach, combined as it often is with the chemic poisons of the diseased mouth, of course is sufficient to interrupt the proper function of other organs in the tract as they are reached, and consequently the whole canal becomes a source of irritation and of poison. Now, the primary source of health and growth being so far drawn from the path of rectitude laid out to furnish man with ease and not disease, it is evident that future digestion, assimilation and nutrition is only a matter of impossibility. If the ptomaines, leucomaines and extractives are found in every organism, and under all conditions, it is only rational to believe that an all-wise Providence has designed them for a specific and for a physiologic purpose. They have a function to perform, even though it were only that of scavengers for other tissues. It would certainly not be wise to place a minor importance upon the function of the kidneys, simply because their principal office seems to be that of eliminators,—on the contrary, the more reason why their integrity should be preserved and their powers not deteriorated, in order that those substances which seek this channel may be thrown

off and not left to accumulate, to contaminate and to poison what would remain healthy.

Likewise, if microörganisms are so universally present, the same facts would equally apply to them, and it is to the prevention of a growth of an abnormal quantity, and to the prevention of the introduction into the organism of specific germs, that the attention of the therapist of the future will be more particularly directed. If we could only get our medical confrères to pay more attention to the chairs of oral and dental pathology that have lately been introduced into our colleges, to the sections on these subjects that have been attached to all the congresses and national associations of late years, we believe they would more fully appreciate their importance, would more often seek the advice and assistance of the specialist, and this in turn would create a bond of union between us and them, stronger and more appreciated than any that has existed up to this time.

Aside from local inoculations and their results, which are usually classed among dental diseases, there are many forms of aberrations that the condition of the mouth may be held especially responsible for. Paralyses, pareses, anesthesias and hyperesthesias adorn the border line where it is difficult to determine whether the case is one for the specialist or the general practitioner; but these lesions having long been noticed as doubtful in their etiology, are not classed among the obscure, and are often brought to the notice of the specialist and his assistance sought. But in those more obscure cases where the cause is greatly clouded, mistakes are more liable to occur, and the physician often battles vainly in his efforts to restore a healthy status by the ever interfering and constantly infecting products of this portal to man's existence. Miller has shown that pulmonary and bronchial diseases are excited or aggravated by the inspiration of germs from the oral cavity, as evidenced in the case cited of J. Israel, where primary actino-mycotic infection followed the lodgment of a small piece of tartar within the lung. Several cases within my own practice confirmed the theory, and I have more than once seen the benefit, and been able to bring it forcibly to the notice of the attending physician, where marked improvement followed the sterilization of the mouth, when all efforts had proved fruitless prior to this step. Alimentary disorders are of such common occurrence, as a result of defective and contaminating mastication as to require no extended notice, and from this one condition all other organs are more or less affected, both nervous and vascular. Bednar, said to be the first to give clear expression to this view in 1854, states that, "indigestion may be brought about *directly*, by taking into the stomach any substance already in a state of fermentation; *indirectly*, when the food taken into the stomach undergoes subsequent fermentation on account of its disproportion of the gastric juices." Henoch favored this conception and found in it a cause for a large number of diarrheas, while Minkowski classifies under five heads the disturbances directly caused by the fermentative processes in the stomach:

1. Substances may be formed which irritate the mucous membrane of the stomach, and bring about a state of catarrhal inflammation.

2. Considerable quantities of gas may be found heightening the mechanical insufficiency of the stomach.

3. Fermentations may lead to the production of substances having toxic properties.

4. In the fermentation of albuminous substances, alkalin products may arise which neutralize the gastric juice.

5. The gastric fermentations may exert a great influence on the functions of the intestines.

And now, what is our lesson? We would ask the general practitioner to regard the unhealthy condition of the oral cavity, with all its contents, as an important factor in the causation or aggravation of diseases having shown, as we believe, that within its boundaries lie the primary causes of many pathologic lesions; that good, healthy, clean and serviceable dental organs are absolutely essential to the enjoyment of physiologic ease, and that in many cases the dental specialist has within his power the rendering of valuable assistance in the search for this result.

DISCUSSION.

Dr. J. S. Marshall said that the paper opened up a field of thought to all of us as dentists, and the application made to the diseases of the general system will make it valuable to the general practitioner. Almost every pathogenic microörganism has been found in the mouth by Dr. Miller, and we can not be too careful about introducing them into our own systems when operating. Upon two occasions he had pricked his finger while at work, and each time had had troublesome sores from the accidents, showing that there was more than a mere wound to deal with.

Dr. Talbot said there were, no doubt, many cases where a foul condition of the mouth was responsible for troubles in the general system, and where an improvement in health and increase in weight had followed the putting in order of the mouth. The infection from the mouth of a patient too, had often caused trouble to the dentist, such as inflammation of the eyes and perhaps sore throat, consumption, and tonsillitis.

Dr. Taft said we should promote the function of the eliminative organs; the skin should be kept clean, the liver active, the kidneys, lungs, etc., in good condition, and then there will be less likelihood of infection from these bacteria. Care should be taken to regulate the food supply as to quantity, quality, and the proper preparation; these precautions with reasonable effort towards keeping the mouth clean will be sufficient to guard against these infections. He also spoke of the habit of mouth-breathing, and said dentists should impose on all their patients the necessity of keeping the mouth closed as much as possible.

Dr. Clifford said that the main idea in his paper was to call attention to the effect the microörganisms of the mouth had upon the general condition. Dr. Taft spoke of keeping the eliminating organs in good condition, but this can not be done unless the mouth is kept clean, for if the mouth contains enough poison to keep the blood, liver, and skin in bad order they can not be got right until the mouth is rid of the cause of the trouble.

NECROLOGY.

Dr. DeWitt Clinton Patterson, Coroner of Washington city, died at his residence, 919 I Street, N. W., Dec. 20, 1893. He was born in Mount Washington Township, Berkshire County, Mass., August 3, 1826. His descent is from Scotch blood, but his American ancestry dates back to his great-great-great-grandfather, Andrew Patterson, who came to America from Leith, Scotland, and landed at Perth Amboy, N. J., September, 1686. The subject of this sketch was the son of Joseph

and Elizabeth (Kane) Patterson. Branches of the Patterson family settled in Connecticut and Massachusetts and still reside there, while others have gone to the great West and founded families. The Doctor's parents removed, while the subject of this notice was yet a boy, to Loraine County in Northern Ohio, where he grew up and where he received his academic education. In selecting a vocation in life he chose the profession of medicine, and selected as a preceptor Dr. L. M. Brooks, one of the leading physicians of that day in the city of Cleveland, Ohio, in whose office he made due preparation for attending profitably instruction in a medical college. He then matriculated in the "Western Reserve College," and after attending the usual course of lectures, received the degree of M.D. from that institution in 1851, and began practice in that city. The following year he was married to Miss Amelia K. Clark.

In 1856 he removed to Winona, Minn., where he practiced until the breaking out of the war, when he returned to Cleveland and was commissioned surgeon of the Twelfth Regiment of Ohio infantry and served to the close of the war. On the restoration of peace he took up his residence in Petrolum Center, Pa.

What he had seen of Washington city during the war with the recommendation of some influential friends, induced him in 1867 to remove to the capital of the nation and there enter upon the practice of his profession. By his education and thorough medical studies he was exceptionally well equipped for the practice of medicine, while his army experience had added to his knowledge, so that by attention to business he speedily obtained an extensive and profitable patronage.

Dr. Patterson joined the Medical Society of the District of Columbia in 1867, and in 1869 he became a member of the Medical Association of the District of Columbia, and was elected to the presidency of that body in 1885. Dr. Patterson was one of the early members of the First Congregational Church, and much interested in the Centenary Church erected at the corner of Tenth and G Streets, and for many years was one of the trustees. He was also actively interested in many of the social and charitable enterprises in the city.

July 2, 1872, Dr. Patterson was appointed to the office of Coroner of the District of Columbia, a position which he filled most acceptably for a period of about twenty years, or until failing health made it impossible for him to leave his house. His last official duties were performed at the inquest over the bodies of the men killed on June 9 by the accident in the old Army Museum on Tenth Street. In this protracted and difficult investigation, although quite ill at the time, he acquitted himself with tact and ability.

Dr. Patterson was highly esteemed in this community, not only as a physician but as a citizen, and his death is severely felt by a large circle of friends and the public generally. He was eminently social in his character. His personal appearance may be described as dignified and noble; six feet in height and weighing, when in health, quite 250 pounds. He had a large, well-shaped head, regular and strongly marked features, fair complexion, bright eyes, sound teeth, light hair which had begun to whiten. He wore a full beard, clipped into manageable length. To crown all, he possessed a cheerful, sunny temperament, dignified and winning manners and a soft and agreeable voice.

In 1881 Dr. Patterson became a member of the AMERICAN MEDICAL ASSOCIATION, and has ever since been very regular in his attendance at its annual meetings. The ASSOCIATION, recognizing his business tact, elected him a member of the Board of Directors for the publication of its JOURNAL. He was also elected treasurer of the Rush Monument Fund now being collected under its auspices.

In 1890 he was Chairman of the Committee of Arrangements for its meeting in Washington in 1891. He was also a member of the Masonic Order in the District of Columbia, and a member of the Ninth International Medical Congress which met in the city of Washington Sept. 5, 1887, and served most efficiently on the local Committee of Arrangements.

Dr. Patterson leaves a widow and two children, Dr. Albert Clark and Miss Elizabeth Patterson. The former has chosen the profession of his father, and is now Third Assistant Physician at the Government Hospital for the Insane at Washington. The Medical Society of the District of Columbia held a special meeting on the announcement of Dr. Patterson's death which was largely attended, and at which appropriate resolutions expressive of the loss to the county and the Society were passed.

Funeral services were held by Rev. S. W. Newman of the Congregational Church, at his late home, in the afternoon of December 21. Dr. Patterson's remains, however, were taken to Cleveland, Ohio, for interment in Woodlawn Cemetery.

Dr. Francis Minot Weld of Jamaica Plain, Mass., died Dec. 31, 1893. He was born in Dalton, N. H., in 1840, and graduated from Harvard in 1860. He studied medicine in the Harvard Medical School from September, 1860, to May, 1862, when he received an appointment as medical cadet. He was relieved from naval duty on Jan. 11, 1864, and graduated from the Harvard Medical School. He entered the army as a Surgeon and was with Grant in the campaign from the Wilderness to Petersburg, and with the Army of the James before Richmond. He moved in 1866 to New York city, where he practiced until 1887. He was Medical Superintendent of the New York Hospital in 1876–7. He was President of the Harvard Club of New York, and one of the founders of the University Club of New York.

Dr. Jonathan P. Wood of New Lebanon, Ohio, December 30. He was born in Rhode Island in 1817, attended Brown University and Berkshire Medical College. He came to New Lebanon in 1845, where he has since resided as one of its most respected medical practitioners.

Dr. Obadiah Prentice, at Norwalk, Ohio, December 29. He was born at Lowville, N. Y. in 1821, and with his parents removed to Ohio in 1837. He was graduated at the Cincinnati Medical College in 1848.

Dr. Solon Philo Sackett of Ithaca, N. Y., died December 18, of disease of the kidneys. He was the senior physician of his section, having been graduated from the Geneva Medical College in 1843.

Dr. P. A. Clark of Lancaster, Wis., December 30. He was graduated at Yale Medical School and was 68 years of age.

Dr. L. F. Coffin of Oskaloosa, Iowa. December.

Dr. Joseph Fowler of Columbia, Tenn., January 2.

THE JOURNAL Special Commissioner's report on the great drainage canal of Chicago, will be published next week. The importance of the canal from a sanitary standpoint can not be overestimated, and with a view of ascertaining the exact status of the work, its progress, and as well the sanitary condition of the workmen, the JOURNAL sent a special representative to make a personal investigation. This report is now in hand and we are sure will be of great interest not only to the inhabitants of a single city, but to sanitarians everywhere.

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SATURDAY, JANUARY 13, 1894.

SOME FACTS CONCERNING THE PHYSIOLOGY OF FATIGUE.

DR. HODGE of Clark University, Worcester, Mass., began in 1887 a series of experiments to determine the nature and character of the changes due to functional activity in nerve cells. The first report of these studies, although published some months ago in the *Journal of Morphology*, is of unusual interest.

The author refers to the fact that all the energy of the body, comes directly from chemical changes and reactions in the individual cells. If we could know the processes which take place in a single nerve cell, it would be the key to all of nerve physiology, from the action of the nervous mechanism in an amœba's protoplasm through the entire animal series to the activity of the human brain. The view prevalent up to this time was, that changes could be found in gland cells because they produce a material secretion, also changes would be noted in muscle cells, because of their mechanical work, but in the nerve cells no changes would be found because their secretion was consciousness, a thing outside of physical observation. The fact was not considered that nerve cells contain masses of granular protoplasm, enclosing a nucleus, which exhibits a delicate reticulation, and contains a prominent nucleolus. Why should not the nerve cell have the same life history of birth, maturity, and death, as other cells? Why should it not suffer from want of nourishment, fatigue, and the struggle for existence?

The study of the pathologic changes in the nerve cells was misleading, for the reason that the normal processes were unknown, and no line could be drawn between the normal and abnormal.

Hence the author sought to find what changes occurred in the cells of healthy animals from electrical stimulation. Frogs, cats and dogs were used, and one-half of the spinal root ganglia was subjected to electrical stimulation for varying periods of time. Then sections from both ganglia were stained, mounted and examined under the microscope. Some of the animals were put under the influence of ether, and a mild current carried directly to the one side of the optic thalmus and other sections of the brain, and after a time the animal was killed and opposite sections made and examined. The results of a large number of experiments exhibited a uniform diminution and decrease of the size of nucleus of the cells, which had been subjected to the stimulation, and a change from smooth and round to jagged irregular outlines. The reticular appearance was broken up, the cell protoplasm was shrunken in size, and the nuclei was decreased in size. The sections of brain not stimulated showed no changes of this nature. Great care was taken that the electrical current should be within physiologic limits. This inquiry followed, Do similar changes occur in the normal activity of an animal from fatigue? and are they restored by rest and sleep? To answer this, numerous sparrows, pigeons and swallows were shot in the morning as they were going out, and at night when coming home after a day of activity. Sections of similar parts of the brains of the morning and evening birds were compared with each other. In all cases the brain cells of the birds at evening were greatly decreased in size, and the nucleus jagged and of irregular outline. The cell-protoplasm also shrunken, and lessened reticulated appearance. The nuclei also greatly decreased. Honey bees were caught coming out of the hive in the morning and compared with bees going in late at night. The same differences were noted in the brain cells, showing degrees of exhaustion and fatigue in one, and vigor and health in the others.

These studies conducted with great accuracy and detail for the purpose of eliminating all errors, seem to point to brain and nerve fatigue as a shrinking of the nucleus and cell protoplasm. Birds identical in appearance shot at night and in the morning brought out this fact, in the shrunken cells at night, and the full rounded cells in the morning. The conclusion is that in sleep the wasted cell recovers its functional changes from fatigue, and the failure of this restoration is the beginning of organic degenerations of all forms and degrees. The cell recovers the bundles of nerve fibers which enter into it, and are lost in the granular substance, and nucleus. Here all the impressions of the external world come in a succession of impulses, and all the outgoing commands are determined.

Something like this decrease and shrinking of cell contents and nucleus are common in old age. It would appear reasonable to suppose that failure to restore the cell contents would be ageing and practi-

cal starvation of the body. If physiologic fatigue is functional changes in nerve cells, which can be restored by rest and sleep, scientific inquiry has taken a step forward of deep significance.

Pathologic changes of cells are the constant study of many astute observers, but the changes which follow normal activities are new lands of research.

DR. HODGE has been for some time making studies of the changes which take place in nerve cells under variations of food and water supply. Also, what changes if any take place in nerve cells from birth to death from old age, from rejuvenation to senescence. These researches will be watched with much interest.

THE SMOKE NUISANCE IN NEW YORK.

The burning of bituminous coal in certain Eastern cities has been largely on the increase, of late. This has been true in so marked a degree, in reference to the down-town districts of New York city, that an investigation has been ordered by the Board of Health. The sanitary code expressly prohibits the consumption of soft coal in such a way as to become an atmospheric nuisance. The citizens most liable to this impending smoke nuisance are watching with eager interest the promised investigation, and intend to oppose the "entering wedge"—the initial soft coal burning that is "merely temporarily noticeable because imperfectly conducted." The alleged pioneer offenders claim that "mistakes on the part of the engineers and firemen, and an improper plan of 'firing' have been the sole cause of injurious results; proper firing and a little experience will remove all grounds of objection to bituminous coal." The temporary strike in the anthracite regions, and the alleged political "pull" of some of the protected industries, will probably give the citizens of New York a taste of the bituminous evil, and a chance to judge of the conspicuous advantages of a proper method of firing soft coal.

THE "DIVINE DIPLOMA."

An irregular practitioner of Garnersville, New York, named MRS. STAGG, has been the subject of a coroner's investigation. When asked by what authority she ventured to practice upon the sick, she replied that it was by "the gift given her by God." It has been her custom to go into a trance and dream out any required diagnosis or treatment. Her favorite remedies have been burdock, witch hazel, dogwood and lavender. The learned coroner came to the conclusion that no harm had been wrought by this woman, by the administration of these "simples," and she was allowed to go free with a mere caution that she had been practicing illegally. He told her that her alleged divine right to tamper with diseased persons was recognized by the laws of New York State. These practitioners, called sometimes "dream-doctors," or "clairvoyants," get along very well until the time comes that a death-certificate becomes necessary, and even after that crisis they may have little trouble if they happen to fall into the hands of an easy-going coroner. They seldom undergo prosecution, although in many a community they are exceptionally prosperous, sufficiently so to excite the envy and antipathy of the better educated, regular type of practitioners. The latter are commonly content to ignore the pretender or to smile at his pretensions.

REMOVAL OF DEAD BODIES.

Somewhere there must be a competent authority to control the removal of dead bodies. It is necessary in order to protect the people from the spread of contagious diseases. Under a statute empowering a State Board of Health to adopt rules and by-laws to prevent outbreaks and the spread of contagious and infectious diseases, it can make a rule requiring that "Every dead body must be accompanied by a person in charge, who must be provided with a ticket, and must also present a full first-class ticket marked 'Corpse,' and a transit permit from Board of Health or proper health authority, giving permission for the removal, and showing name of deceased, age, place of death, (and if of a contagious or infectious nature) the point to which it is to be shipped, medical attendant, and name of undertaker." So holds the Appellate Court of Indiana in the case of Lake Erie & Western Railway Company v. James, decided Nov. 24, 1893. And it is further held in this case that, under such a rule, a railway company can not be required to carry a dead body on a permit signed by a health officer authorizing the removal, unless it shows a substantial compliance with the requirements. The name of the medical attendant, for example, must be deemed a material and essential part of this transit permit. Without giving it, the proper health officer's certificate, or otherwise regular permit, would not be sufficient.

AGREEMENTS NOT TO PRACTICE MEDICINE.

Agreements not to practice medicine come under the head of contracts in restraint of trade. Public policy forbids the making of contracts of this nature too broad in their terms. Thus, no contract could be enforced which would by its terms prevent a physician from ever again practicing medicine, or which would bar him from practicing it in an unreasonably large extent of territory. Even in cases where the law will tolerate the contracts, they will not be treated with any special indulgence. If they secure to the purchaser of a good will a guaranty against the competition of a former proprietor, or practitioner, it will not be presumed that more was intended. At the present day the occupation of a pharmacist and that of a physician are essentially

distinct. An agreement not to engage in the one does not preclude the party from engaging in the other, so long, the Court of Appeals of New York holds, in the case of Greenfield v. Getman, decided Nov. 28, 1893, as the one is not used as a cover for the operations of the other. Here was a contract by which a physician, in consideration of $500 paid him, agreed that he would not practice medicine and surgery, for five years, in a certain village, or within a radius of something like five miles thereof, or, if he did, he would forfeit and pay $1500. To practice medicine and surgery, it was further stipulated, in the agreement, should be construed to mean to prescribe for, to compound medicine for, advise or visit any person sick or disabled, or to perform any act required to be done by a person legally qualified to practice medicine and surgery. A year after making this contract, he entered into partnership with another in the business of selling drugs, books, stationery, etc., at a place two miles distant from the village referred to. Through the following four years, he once attended, as counsel, with two other physicians, upon a person *in extremis*, for which he made no charge, but was paid and accepted a small fee. On several other occasions he prescribed, as it were, for persons coming to the drug store, by furnishing them with medicines suitable for their respective ailments; but without making any charge for medical advice, and without such sales aggregating $10. This, the court held, was not a violation of his contract. Undoubtedly, it said, the parties might have so stipulated that a single act, such as was described in the agreement, would have rendered the physician, if he had committed it, liable for the full amount of damages recoverable for breach of contract. But before such a meaning should be given to an agreement of this kind, it should appear, upon a fair and reasonable interpretation of its provisions, in the light of the circumstances under which it was made, and of the evident intent and object of its execution, that no other inference would be justly permissible. Construing this particular agreement in accordance with its obvious purpose, the definition, which should be considered as determining what was agreed upon to constitute the practice of medicine and surgery, did not enlarge the meaning of that term, but merely specified things, which, if systematically or habitually or frequently done, would be a breach of the agreement.

SELECTIONS.

Influence of Ultra-Violet Rays on Smallpox.—Lindholm of Bergen, has employed the method recommended by Finsen, of treating smallpox patients in a room from which the ultra-violet rays are shut out by red window panes, or by covering the windows with red curtains. Twenty cases, of which ten were unvaccinated children, were treated in this manner with complete success; all recovered, although severely attacked; in one case even "black smallpox" was present. The eruption dried up shortly after its appearance, no fever of maturation took place, and the patients recovered very soon, having but few scars.—*Hospitalstidende*, 1893 p. 919.—*Universal Medical Journal.*

Catarthinic Acid.—M. Gentz has obtained this acid which he calls catarthinic acid from senna. It appears in the form of a brown powder, little soluble in water. This purgative may be given in the dose of five to fifteen centigrams, and its effects are manifested eight to ten hours after administration. On healthy subjects having taken the remedy solely to study its physiologic action, it causes frequent stools (about five in half a day) and mild colic. In persons affected with chronic constipation, on the contrary, colic is not observed in the generality of cases. The action of the medicine is more slow and less attended with disagreeable sensations. Thanks to this latter circumstance and taking into consideration the absence of all disagreeable taste, and the certainty and energy of its action, he was able to predict for the catarthinic acid an honorable place among the purgatives.

In infants of 2 to 4 years the acid was prescribed in a dose of .05 mixed with sugar, and a dose of .15 for adults.

Dehio tried the medicine on five well persons, and five persons suffering from chronic constipation. He offers the following formula:

℞ Acid, catarthinic . . . . . .05 to .15
Sacch, alb . . . . . .30 to .50
M. For *one* powder. Of such a powder take one every hour or two.

M. Dehio has not yet had occasion to study the action of the catarthinic acid for a long time, but considering the results of his ten trials, he is much inclined to hope that in these cases the remedy may render signal service.—*Journal de Medecine de Paris*, Dec. 17, 1893, from Vratch, No. 30, C. S., and *Noveaux Remedès*, 24 Novembre, 1893.

The Rhine Vintage of 1893.—The vintage on the Rhine is now in a large measure finished, and the character of the wine of 1893 can, to a certain extent, be estimated, though it can not yet be said with absolute certainty what its precise quality will be in comparison with the best vintages of preceding years.

It is admitted on all sides that the wine of the present year will undoubtedly be fine in quality, but there seems to be a disagreement of opinion as to whether it will excel the wine of all years since 1868, when a very noted vintage was obtained. Some think it will be a wine like that of 1886, or that of 1874, which were both excellent wine years, but not of a red-letter character like those of 1868 and 1865—to which the public here are constantly reverting when they speak of wine exceptionally fine—while others think that the quality of the 1868 wine will be reached by the wine of this year. Of course, it is to the interest of the wine-growers to exaggerate the probable quality of the new wine and of buyers and dealers to depreciate it.

The past summer, while very disastrous to forage plants, on account of its excessive dryness, was very favorable to fruit, and the grape did well, though a little rain now and then would have been very serviceable to it and would have still more increased the amount and raised the quality of the product. The grapes this year have all ripened, green grapes being the exception. Having ripened early, they have been untouched by frost, with, perhaps, a few exceptions, and the wine will consequently be free from the objectionable flavor often imparted by frost to wine. There were a great many overripe grapes this year, and these make the best wine.

The must weights in the better class of vineyards have been from 100° to 112° Oechsle as a common thing, while in the finest vineyards must weights up to 150° Oechsle have been noted, which is a remarkable weight. It is reported that the very best vineyards, such as the renowned Steinberg, for instance, the must weights indicate a wine unsurpassed by any of the century. The must is very sweet. In ordinary vineyards must weights have run this year from 80° to 100° Oechsle as a rule.

In the matter of quantity the vintage, on the whole, will be, so far as I can make out, what is called a full one-half crop. This is a gratifying amount,as a three-fourths vintage is a rarity and a full vintage remarkably scarce. The yields vary considerably in the different vineyards, making what the wine-growers call a *neidischer Herbst*, that is, an enviable ingathering, as some get three-fourths or more of a crop, while others have but one-third or less, which, when there is a good wine involved, makes the less lucky ones decidedly envious of their more fortunate neighbors.

The prices prevailing for the new wine are said to be rather moderate, taking into consideration the quality of the product. Buying is not as brisk as it should be. This is due to a shortness of money and to a disposition on the part of the wine trade to await the outcome of a threatened imposition of a tax on wine by the Imperial Government before making heavy purchases of new wine. But there will doubtless be a good deal of speculation in the new wine before long.

Wine, when exported, is to be exempt from taxation, it seems.—JAMES H. SMITH, Commercial Agent. In U. S. Consular reports for December, 1893.

MAYENCE, October 20, 1893.

BOOK NOTICES.

An American Text-Book of Gynecology, Medical and Surgical, for Practitioners and Students. By HENRY T. BYFORD, M.D., J. M. BALDY, M.D., E. B. CRAGIN, M.D., J. H. ETHERIDGE, M.D., WM. GOODELL, M.D., HOWARD A. KELLY, M.D., FLORIAN KRUG, M.D., E. E. MONTGOMERY, M.D., WM. R. PRYOR, M.D., GEORGE M. TUTTLE, M.D. Edited by J. M. BALDY, M.D. With 360 illustrations in text and 37 colored and half tone plates. Large 8vo, cl., pp. 713. Philadelphia: W. B. Saunders. 1894. Price $6.00. Sold by subscription only.

Reference to our review columns will show that works on gynecology have been rather numerous in the past two or three years, the entertaining book of More-Madden and the elaborate translation of Pozzi being the latest additions to gynecologic literature. This volume is printed on good paper; the illustrations are extremely good, and its type large and clear. The subjects treated of are: the examination of the female pelvic organs; the technique of gynecologic operations; menstruation and its anomalies; sterility; anomalies of the female generative organs; genital tuberculosis; diseases of the vulva and vagina; inflammatory diseases of the uterus; laceration of the soft parts; genital fistulæ; distortions and malpositions; malignant diseases of the female genitalia; uterine neoplasms; pelvic inflammations; ectopic gestation; diseases of the ovaries and tubes; diseases of the urethra, bladder and ureters; and after-treatment in gynecologic operations.

The scope of the work, it will be seen, is quite as extensive as could well be covered in a single volume text-book, and the treatment of the subjects mentioned is fairly representative of American gynecologic surgery. The great changes that have taken place since the pioneer work of Sims, Bozeman and Emmet, may well give rise to a just pride in the achievements of American surgeons, and the perfected practice of the day is fairly set forth in this book.

The Healing of Rodent Cancer by Electricity. By J. INGLIS PARSONS, M.D., M.R.C.S., M.R.C.P., (Lond.), cl., pp. 82. London: John Bale and Sons. 1893. Price five shillings.

In this little book the author describes his method of treatment of rodent ulcers by electricity. He uses nine needles "from two to four inches long, composed of steel with platinum ends. The steel portion is insulated, and attached to about eighteen inches of covered wire. When they are in position the wires leading from them are connected to the battery. When the patient is fully under, the assistant at the battery is directed to use twenty cells, and then to turn the current on for one or more seconds as required. Meanwhile the other assistant holds the needles in position, while the operator keeps his finger on the pulse, notices the strength of the current as shown by the galvanometer, and observes the effect produced on the growth. After one or more seconds the current is turned off."

The number of cells is increased until the galvanometer shows a current of 300 to 400 milliampères. The duration of the operation depends upon the extent of the growth, and lasts from ten minutes upward. Where long continued use would be required, the author recommends a second sitting.

The work is interesting, and shows a thorough acquaintance with this branch of electro-therapeutics.

The Technique of Postmortem Examination. By LUDWIG HEKTOEN, M.D., Pathologist to Cook County Hospital, Chicago; Professor of Pathologic Anatomy in the College of Physicians and Surgeons of Chicago. With forty-one illustrations, pp. 172. Chicago: The W. T. Keener Company. 1894. Price $1.75.

This is an excellent condensation of the rules for the conduct of postmortem examinations, by a very competent hand. The author well says:

"Accuracy of observation, completeness of detail and sound conclusions can be obtained only when the postmortem examination is made according to some definite and systematic plan, so that regions and organs are successively examined without disturbing the relations and appearances of structures yet to be investigated."

To promote these desirable objects, this book has been prepared.

1. **State Board of Health of New York.** Twelfth Annual Report. Albany, 1892.
2. **The Same.** Thirteenth Annual Report, with a volume of maps. Albany, 1893.

These volumes show very active work on the part of the Board, particularly in advice to towns, furnishing plans for sewerage and the like. Various general investigations, and special reports by Prof. Willis G. Tucker on food and drugs. A reprint of the monthly bulletins concludes the report.

In the thirteenth report, there is a special report on "Inspection of Cattle for Tuberculosis," and a continuation of the very interesting report on the Hudson River.

The work of the Board was augmented during 1892 by the threatened invasion of cholera. The new law providing for the inspection of cattle for tuberculosis went into effect with an insufficient appropriation, and although between six and eight thousand cattle have been examined, the work was far from complete. The Board has found ready coöperation on the part of owners.

These reports are of great value and are interesting as showing the practical details of sanitary work on a large scale.

CORRESPONDENCE.

104 E. 40TH ST., CHICAGO, Dec. 28, 1893.

To the Editor:—Allow me to call the attention of the incoming staff of the Cook County Hospital to an opportunity to encourage better medical education which its position affords. The examinations for internes will soon come off. It has been customary to examine on the eight branches of the old medical education. No examinations have been given which have afforded the student an opportunity to gain credits on laboratory work. No examinations have been given with histological or pathological material, or indeed in any way except by written questions requiring

written answers. This has resulted in disaster to those applicants who have had laboratory work as a considerable part of their course. It has resulted in a growing opposition to laboratory work in the College of Physicians and Surgeons on the part of the faculty and of the students. If the present class, which is the first to graduate on the new course of study containing laboratory work, should secure a fair representation in the coming examinations at the County Hospital, it is possible that the directors of the college will continue the laboratory work; but if the examinations are again conducted on the quiz-compend and note plan, it is almost certain to be abandoned. Few members of the County Hospital Staff are medical college men. They belong to the outsiders who are always cursing the diploma mills. Now let them offer an examination that will give a man who has worked three years, two hours a day with microtome, microscope and dissecting tools a chance to show the superiority of his education over that of the man who has listened to lectures and crammed.

It is time, too, that the applicants were considered human. It seems strange that doctors of medicine should require students to write five or six hours a day on as many different subjects. A number of strong men have left their examinations every year from exhaustion. Even a country school master would not be so inconsiderate.

Not a suggestion of a clinical or autopsical examination has ever been given. Does this encourage the teaching that makes good doctors?

My interest in this examination is a part of my interest in honest medical education. I speak freely now because though still connected with the College of Physicians and Surgeons as a teacher, I am no longer its secretary. The neglect of this and other examining bodies to introduce examinations in practical biology, histology, pathology, embryology and bacteriology has so militated against our students that my ideas could not be longer carried out by our directors without too much opposition and too much expense. Shall laboratory instruction be continued in our medical schools? What does the staff of the County Hospital say? What do the examining boards of the various States say?

I hope that this subject is of such interest that it may be discussed in the columns of the JOURNAL.

Very respectfully, BAYARD HOLMES,

Late Secretary of the College of Physicians and Surgeons of Chicago.

Should Use the M.D.

To the Editor:—Would it not be well to draw a line between an M.D. and Dr., since the higher medical education is becoming the hobby in the way of journal notoriety, much of it without practical results. The M.D. having been conferred by collegiate authority while the Dr. is the prefix of all quacks. Therefore if the M.D. is worth anything, let it be used at all times by those entitled to do so. I notice the JOURNAL you direct uses the Dr. almost exclusively.

Respectfully, etc., S. L. HENRY, M.D.

The Maltine Photographs.

The Maltine Company requests us to reprint their letter to the *New York Medical Journal*, as answer to the criticisms that appeared last week:

THE PUBLICATION OF PHYSICIANS' PORTRAITS.

NEW YORK, Dec. 26, 1893.

To the Editor of the New York Medical Journal:

SIR: Your reference to our calendar for 1894 demands our attention. While you did not mention us by name, the reference is so direct that the physicians who received the calendar can not but know to whom you referred.

It has been our custom for several years to send to the medical profession throughout the United States portraits of eminent physicians and surgeons, and, inasmuch as their distribution has been scrupulously confined to medical men of good repute, no objection has been offered by those gentlemen whose likenesses we reproduced. Not a copy of this calendar, nor of any of our other numerous publications, has ever been sent to the laity.

Maltine is distinctly not a "patent medicine," nor has it ever been advertised to the public, and therefore we have considered it within our province to [distribute portraits just as we have promulgated testimonials from the most eminent physicians and chemists in this country and Europe.

We have statistics to prove that 90 per cent. of the physicians of the United States prescribe maltine. This fact, in addition to the fact that we reach the patient *only through the physician*, would seem to amply vindicate our use of the likeness of a physician whose pictures are on public sale and have continually appeared in the public press, and who is well known as a public man.

The portraits referred to were not used to push the sale of our preparations, as was the portrait of Dr. D. Hayes Agnew, recently published by us. It will be remembered that we printed under Dr. Agnew's portrait a facsimile of his indorsement of maltine. Our only reason for publishing the portrait of Dr. —— was because we thought it would interest his medical brethren, who have shown so high an appreciation of the series of likenesses we have already published.

We should like further to say that as soon as objection was made by him we suspended the distribution of the calendars, as we would not knowingly offend even one of the honorable profession to whom we are so greatly indebted. THE MALTINE MANUFACTURING COMPANY.

SOCIETY NEWS.

Michigan State Medical Society.—Owing to change in the date of the meeting of the AMERICAN MEDICAL ASSOCIATION in San Francisco, I am requested by the President of the Michigan State Medical Society to announce that its Twenty-ninth Annual Meeting will be held in Lansing, May 3 and 4, 1894, instead of the first week in June as heretofore announced. Respectfully,

CHAS. W. HITCHCOCK, Secretary.

DETROIT, Jan. 1, 1894.

Prize of the American Neurological Association.—The American Neurological Association offers a prize of $200 for the best essay on any subject connected with Neurological Science. This competition is open to physicians who are legal residents of States in North and South America. Essays must be sent to the Secretary of the Association on or before the first day of May, 1894. Each essay shall be accompanied by a sealed envelope containing the name and addresses of the author, and bearing on the outside a motto, which shall also be inscribed upon the essay. Essays shall be type-written, in either the English or French Languages, and with the pages securely fastened. The Council of the Association reserves the right to reject any or all essays judged unworthy of the award. Each essay must exhibit original research, and none will be accepted that has previously been published.

GRÆME M. HAMMOND M.D., Secretary.

American Electro-Therapeutic Association, office of the Secretary, 68 Madison Avenue, New York. At a meeting of the Executive Council of the American Electro-Therapeutic Association, held at the office of the Secretary, March 2, 1893, the following resolution was adopted:

Resolved, That the Secretary be instructed to prepare a circular to send to Fellows of the Association, to members of the medical profession, to electrical experts, and to manufacturers of electrical appliances for medical work, containing titles of all the committees, the members serving on them with their addresses and the matter prepared for discussion and investigation by each committee.

And that manufacturers be asked to communicate with the members of the different committees, if they desire to have their instruments examined and tested, stating their claims and merits.

And that physicians, electrical experts and manufacturers be asked to cooperate in making suggestions and in relat-

ing their experience and preference for instruments, with reason and data.

And to mail this circular to all members of the Association, manufacturers, medical journals and to others who are known to use electricity extensively, asking for a speedy reply either to the Secretary or to the members of the respective committee whom it concerns.

In accordance with the above resolution the following has been prepared:

COMMITTEE ON STANDARD COILS.

Dr. W. J. Morton, 19 East 28th Street, New York; Dr. A. H. Goelet, 351 West 57th Street, New York; Dr. Wm. F. Hutchinson, Providence, R. I.; Dr. G. J. Engelman, 3003 Locust Street, St. Louis, Mo.; Mr. A. E. Kennelly, Chief Electrician, Edison Laboratory, Orange, New Jersey.

POINTS TO BE CONSIDERED.

1. Portability.
2. Practical mechanism of machines as adapted to physicians' use.
3. Range and rate of vibration.
4. Electro-motive force and its range in relation to resistances to be overcome.
5. The resistance of the coil producing these electro-motive forces.
6. The battery-power required for individual coils.
7. Shape of the generated wave of electro-motive force.

COMMITTEE ON STANDARD METERS.

Dr. Margaret A. Cleaves, 68 Madison Avenue, New York; Dr. Emil Heuel, 352 Willis Avenue, New York; Mr. W. J. Jenks, Electrical Engineer, 44 Broad Street, New York.

POINTS TO BE CONSIDERED.

1. A good meter should have a clear, legible scale, fairly uniform over the range, and not crowded at different points.
2. It should be capable of being noted or observed at a distance.
3. The resistance should be low.
4. There should be no tendency to overheat with the strongest current employed.
5. It would be advantageous to avoid a shunt, if one milliampère can be read throughout the scale.
6. The instrument should be capable of indicating in all positions.
7. Any instrument whose indications depend directly upon the local magnetic force is objectionable, for the reason that its indications are liable to be affected by iron in the vicinity.
8. The suspended system should require as little attention as possible, either for adjustment or shipment.
9. It is an advantage for the instrument to indicate with either direction of the current.
10. Portability.
11. Liability to fracture.

COMMITTEE ON STANDARD ELECTRO-STATIC OR INFLUENCE MACHINES.

Dr. W. J. Morton, 19 East 28th Street, New York; Dr. J. H. Kellogg, Battle Creek, Mich.; Dr. G. Betton Massey, 212 South 15th Street, Philadelphia; Dr. Margaret A. Cleaves, 68 Madison Avenue, New York.

POINTS TO BE CONSIDERED.

1. Electro-static machine best adapted to medical work, to be determined by its "output." Its output to be determined as follows: *a*, at, respectively, 100 and at 150 revolutions per minute; *b*, with two Leyden jars, each of whose outer metallic surfaces has the area of $4\frac{1}{4} \times 1$ 1-16 inches = 5 5-16 square inches; *c*, with discharging-rods having ball terminals one inch in diameter and arranged respectively six inches and ten inches apart; *d*, give the number of sparks per minute which will pass between the discharging-rods.
2. Give the greatest maximum length of spark with machine arranged as in Section I, except as to distance apart of the discharging-rods.
3. Give the maximum length of the brush discharge between the discharging-rods with machine arranged as in Section I, except that no Leyden jars are used.
4. Give the maximum length of spark that may be obtained by a brass-ball electrod two inches in diameter, from a person's back, seated in the usual manner upon an insulated platform—the platform connected to one prime conductor of the machine, the other being connected to the ground: *a*, with above Leyden jars; *b*, without Leyden jars.
5. Kind of electro-static machine best adapted to medical work, whether a Holtz, Wimshurst, Toepler, Voss, Carré, Lewandowski, Toepler-Holt, Wimshurst-Holtz or machine not here named, provided the type as constructed successfully fulfills requirements outlined in Section I.
6. Does the machine preferred easily reverse its charge? Does it maintain its charge successfully?
7. Facility and means of charging machine under all atmospheric conditions.
8. Can a good meter to measure the output of the machine be suggested?
9. Mechanical construction of machine: *a*, ease of actuating machine by motive power; *b*, durability of the mechanism causing the revolution of its plates; *c*, durability of its construction; *d*, is a glass case necessary?
10. The best means for drying the air within an enclosing glass case.
11. The best means for absorbing the ozone and nitrogen compounds formed within a glass case.
12. Is it not advisable to decide in a general way that no machine, the diameter of whose revolving-discs is less than twenty-six inches, and the number of whose discs is less than six, should be recommended by this Committee for medical work?
13. Suggestions as to a practical switch for the utilization of Morton's static induced and the transformer currents.

COMMITTEE ON CONSTANT-CURRENT GENERATORS AND CONTROLLERS.

Dr. W. J. Herdman, 48 East Huron Street, Ann Arbor, Mich., Current Controllers and Battery Tests; Dr. Robert Newman, 68 West 36th Street, New York, Primary Stationary Batteries; Dr. D. S. Campbell, Correspondence with Physicians; R. G. Brown, E. E., Brooklyn, N. Y., Secondary Batteries and Dynamos.

POINTS TO BE CONSIDERED.

1. Primary batteries.—Express what preference for a certain form of battery and give reasons therefor. Determine voltage, internal resistance current and durability. By what accessory appliances are currents from these batteries best controlled and applied?
2. Secondary batteries.—What are the defects and inconveniences? What the advantage over other forms? What the ampère hours, what the constancy, voltage and action?
3. As to dynamo currents.—What the nature of the current, what its voltages, how is it modified by the form of controller under consideration. What are its physiological effects and its therapeutical application?
4. Report new forms of batteries and improvements, with claims as to superiority over those now in use.
5. Rheostats and Controllers.—Test the various forms and devices used and recommended to modify and control currents; difference in effect produced by each, mechanically, chemically, physiologically, or therapeutically.

COMMITTEE ON STANDARD ELECTRODES.

Dr. A. Lapthorn Smith, 248 Bishop Street, Montreal, Canada; Dr. Charles R. Dickson, 263 Victoria Street, Toronto, Ontario; Dr. Plym S. Hayes, 84 Washington Street, Chicago, Ill.

POINTS TO BE CONSIDERED.

1. Inactive electrodes.—*a*, what is the best material in general for the ground work of the electrode and what in special cases? *b*, how may it best be connected with its rheophore? *c*, what is the best material to cover its conducting surface? *d*, when necessary, how may it best be insulated? *e*. In what way may it be kept warm and moist when not in use, should this be necessary? *f*, what should be accepted as standard sizes and shapes, and how best designated? *g*, what other points require to be considered?
2. Active electrodes.—*a*, what is the best material in general and in special for the groundwork of the electrode? when used at the positive pole? when used at the negative pole? *b*, how may it best be connected with its rheophore? *c*, what is the best material to cover its conducting surface when necessary, in general and special. *d*, how may it be insulated when necessary? *e*, what is the best form of construction where flexibility is required for tortuous canals? *f*, what shall be considered the standard shapes and sizes; what scale shall be adhered to in considering the latter; how may their surface area be estimated when they are of irregular shape? *g*, when designated by numerals as to size and surface, how may such best be expressed when stamped or otherwise marked on them? *h*, how may simplicity of construction be best obtained and cost of manufacture reduced without impairing efficiency? *i*, how may facility of cleansing and rendering aseptic best be achieved? *j*, what other points to be considered?

3. Active and inactive electrodes.—*a*, are the terms "active" and "inactive" the best standard terms we can employ? *b*, In the case of both active and inactive electrodes, should not the threads of all screws used in construction as a means of attachment, also all plugs and sockets, etc., be of a standard gauge, that electrodes might be used with attachments of all makes, etc., and to facilitate repair.

Since this circular was issued slight changes in some instances have been made in the Points to be Considered by the various committees. A Committee on Electric Light as a Therapeutic and Diagnostic Agent, was created at the annual meeting of the Association, in Chicago, Sept. 12, 13 and 14, 1893.

COMMITTEE ON ELECTRIC LIGHT AS A THERAPEUTIC AND DIAGNOSTIC AGENT.

Dr. Plym S. Hayes, 84 Washington Street, Chicago; Dr. Margaret A. Cleaves, 68 Madison Avenue, New York; Dr. H. H. Hahn, 304 E. Federal Street, Youngstown, Ohio.

POINTS TO BE CONSIDERED.—THERAPEUTICS.

1. How can the heat of the incandescent and arc light best be utilized in the treatment of disease?

2. *a*, what form of apparatus is best adapted for the use of the electric light in the treatment of disease? *b*, is there any difference in the therapeutic effects of the incandescent and arc lights? *c*, does the coloring of the light, by causing it to pass through colored glass or similar substances, add to the efficacy of the light? *d*, is the light and heat derived from the electric light different or of greater therapeutic value than that derived from any other source? *e*, what pathogenic germs have their growth arrested, or are killed, by continuous exposure to the influence of light? *f*, can a disease produced by the above mentioned germs be modified or arrested by the continuous exposure to light?

DIAGNOSIS.

1. *a*, Illumination by means of a combination of the electric light reflectors and condensors so arranged as to furnish parallel or convergent rays of light. *b*, what form of apparatus is best adapted for general use? *d*, what for special?

2. *a*, what are the best forms of apparatus for illuminating the various cavities of the body, and at the same time enabling the physician to obtain a view of the whole or part of the cavity? *b*, is the heat evolved from the lamp employed, of sufficient intensity to require especial means for its absorption?

3. *a*, to what extent is the introduction of an electric light into the various cavities of the body, in order to determine the condition of those cavities or the translucency of the surrounding tissues, of advantnge?

Your prompt and full reply is earnestly solicited to any or all of the points above suggested.

MARGARET A. CLEAVES, M.D., Secretary.

Dec. 4, 1893.

Medical Society of the State of New York.—The eighty-eighth annual meeting will be held Tuesday, Wednesday and Thursday, February 6, 7 and 8, in the City Hall, at Albany, commencing at 9:15 A.M., Tuesday, and ending at 1 P.M., on Thursday. Communications relating to the presentation and reading of papers or to any changes in the provisional program, should be addressed to the Business Committee prior to the first day of February. Dr. Henry Flood, Elmira, N. Y.; Dr. L. Bolton Bangs, 31 East 44th Street, New York City; Dr. Edward Clark, 271 Franklin Street, Buffalo, N. Y.

TUESDAY—MORNING SESSION 9:15 O'CLOCK.

President's Inaugural Address. Appointment of Committees. Executive Business. Special order at 10 A.M., to consider resolution to amend the by-laws.

Hemorrhagic Serous Effusion of the Pleura, with Report of a Unique Case; William S. Cheesman, M.D., Auburn.

Researches on the Eliminating Power of Diseases, and the Relation between Vaccinia and Enteric Fever; William Finder, M.D., Troy.

Pneumonia of the Aged; John H. Pryor, M.D., Buffalo.

Diagnosis and Nomenclature of Fevers—2d Paper; Nelson G. Richmond, M.D., Fredonia.

The Therapeutics of Oxygen; Arnold W. Catlin, M.D., Brooklyn.

Simple Methods in the Diagnosis of Nervous Diseases; E. C. Spitzka, M.D., New York.

Discussion on Diphtheria; Arranged by A. Walter Suiter, M.D.

Pathology—Status Præsens; Thomas E. Satterthwaite, M.D., New York.

Observations on Diagnosis, and some Sanitary Aspects; A. Walter Suiter, M.D., Herkimer.

Croup and Diphtheria—Unity or Duality; William H. Daly, M.D., Pittsburg, Pa.

The Comparative Status of Intubation of the Larynx; Joseph O'Dwyer, M.D., New York.

Complicated Intubation of the Larynx; William Hailes, M.D., Albany.

The Local Treatment; Abraham Jacobi, M.D., New York.

The General Treatment; Edward F. Brush, M.D., Mount Vernon.

The Use of Tartar Emetic in Diphtheria; H. DeV. Pratt, M.D., Elmira.

AFTERNOON SESSION, 2:15 O'CLOCK.

Treatment of Depressions in Skull of Newborn; David D. Jennings, M.D., New York.

Immediate Trachelorrhapy; Henry C. Coe, M.D., New York.

Lympho-Adenoma of the Uterus; H. J. Boldt, M.D., New York.

Senile Endometritis; A. J. C. Skene, M.D., New York.

Treatment of Endometritis; Herman E. Hayd, M.D., Buffalo.

Nine Years' Experience with Alexander's Operation for Shortening the Round Ligaments of the Uterus; Paul F. Mundé, M.D., New York.

Pelvic Abscess; Walter B. Chase, M.D., Brooklyn.

A case of Hysterectomy for Retention of the Menses; William Gardner, M.D., Montreal.

Discussion. Arranged by Andrew F. Currier, M.D. Topic—Menstruation and its Abnormalities.

Introduction and Normal Function; Andrew F. Currier, M.D., New York.

Dysmenorrhea—Its Causes and Its Treatment; Howard Kelly, M.D., Baltimore, Md.

Profuse Menstruation; Charles P. Noble, M.D., Philadelphia, Pa.

Scanty Menstruation; Franklin Townsend, Jr., M.D., Albany.

Irregular Menstruation; Charles A. L. Reed, M.D., Cincinnati, O.; E. W. Cushing, M.D., Boston, Mass.

Menopause—Natural and Artificial; Arthur W. Johnstone, M.D., Cincinnati, O.

EVENING SESSION, 7:15 O'CLOCK.

Urethral Caruncles; Edward M. Liell, M.D., New York.

The Physical Causes of Sexual Debility in the Male, as distinguished from the Psychical Causes; F. R. Sturgis, M.D., New York.

The Surgical Treatment of the Prostate Gland; Seneca D. Powell, M.D., New York.

The Fable of the Egg; William S. Ely, M.D., Rochester.

Artificial Immunity; Henry R. Hopkins, M.D., Buffalo.

Clinical Notes on Psoriasis with Especial Reference to its Prognosis and Treatment; L. Duncan Bulkley, M.D., New York.

Spinal Supports and Braces, the Indications for their Use, History and Modern Perfection. To be Illustrated with Forty Lantern Slides; A. M. Phelps, M.D., New York.

History and Pathology of the Spinal Cord. Illustrated with Lantern Slides; William C. Krauss, M.D., Buffalo.

WEDNESDAY—MORNING SESSION, 9:15 O'CLOCK.

Discussion on Abdominal Surgery; arranged by A Vander Veer, M.D.

Disputed Points in the Treatment of Pelvic Surgery; Joseph Price, M.D., Philadelphia, Pa.

Influences Affecting the Results of Abdominal Operations; J. F. W. Ross, M.D., Toronto, Canada.

Hemorrhage after Abdominal Section. Its Place in Statistics; A. H. Buckmaster, M.D., New York.

Cysts of the Epigastrium; Dudley P. Allen, M.D., Cleveland, Ohio.

The Techniqne of the Abdominal Incision. Methods of its Closure and its Subsequent Management; W. W. Potter, M.D., Buffalo.

Operative Procedure for the Relief of Obstruction of the Common Duct; W. E. B. Davis, M.D., Birmingham, Ala.

Two Cholecystotomies for Gall Stones with Recovery, with Remarks on Operative Methods Based upon Five Cases; William Wotkyns Seymour, M.D., Troy.

Gall Stones, the Exciting Cause of Malignant Disease; Rufus B. Hall, M.D., Cincinnati, Ohio.

Appendicitis; Charles McBurney, M.D., New York.

An Analysis of 150 Personally Observed Cases of Appendicitis; George Ryerson Fowler, M.D., Brooklyn.

A Conservative View of the Treatment of Appendicitis; William S. Tremain, M.D., Buffalo.

Some Observations Relative to the Treatment of Suppurative Appendicitis, with Report of Cases; Willis G. Macdonald, M. D., Albany.

Palpation of the Vermiform Appendix; J. M. Edebohles, M.D., New York.

The Inch and a Half Incision, and Week and a Half Confinement in Appendicitis; Robert T. Morris, M.D., New York.

Report of a Case of Post-Peritoneal Abscess from Duodenal Ulcer, with Presentation of Specimen; L. S. Pilcher, M.D., Brooklyn.

Intestinal Perforation in Strangulated Hernia; William B. DeGarmo, M.D., New York.

Remarks on After Treatment of Abdominal Section; Carlton C. Frederick, M.D., Buffalo.

The Unexpected as Sometimes Observed in Abdominal Surgery; A. Vander Veer, M.D., Albany.

AFTERNOON SESSION, 2:15 O'CLOCK.

Recent Methods of Gastrostomy for Stricture of the Esophagus; Willy Meyer, M.D., New York.

The Influence of Physiological Rest on Prolapse of the Rectum; Joseph D. Bryant, M.D., New York.

A Contribution to the Subject of Excision of the Larynx; Charles A. Powers, M.D., New York.

Observations on 118 Cases of Cancer of the Breast, with Especial Reference to its Radical Cure by Operation; William T. Bull, M.D., New York.

The Treatment of Hernia. (Supplement to Paper read last year); Alexander Dallas, M. D., New York.

Some Cases of Brain Surgery; Herman Mynter, M.D., New York.

The Needlessness of a Mydriatic in Adjusting Glasses to the Eye; D. B. St. John Roosa, M.D., New York.

The Action of Scopolamine on the Eye; Thomas R. Pooley, M.D., New York.

The Treatment of Nasal Hemorrhage; John O. Roe, M.D., Rochester.

Report of a Case of Injury to Cauda Equina; Hermon C. Gordinier, M.D., Troy.

WEDNESDAY—EVENING.

Anniversary Address by the President, 8 o'clock, Senate Chamber. Topic—The Physician of Sacred History. Annual dinner of the Society, 9:30 o'clock, Delavan House.

THURSDAY—MORNING SESSION, 9:30 O'CLOCK.

The Treatment and Prevention of Epilepsy in the Young; Graeme M. Hammond, M.D., New York.

The Practical Workings of the Law for the Care of the Insane; Carlos F. MacDonald, M.D., New York.

Lunatics in Public Places; Wallace J. Herriman, M.D., Rochester.

The Subfrontal Gyre (Broca's Convolution) in Man and Apes; Burt G. Wilder, M.D., Ithaca.

Acromegaly; Floyd S. Crego, M.D., Buffalo.

Report of a Case of Acromegaly, with the Exhibition of the Subject; Frederick Remington, M.D., Rochester.

Uremic Hemiplegia; Reynold W. Wilcox, M.D., New York.

Glycosuria; W. B. Vanderpoel, M.D., New York.

OFFICERS AND COMMITTEES OF THE SOCIETY.

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Committee on Prize Essays—Franklin Townsend, Jr., Albany; A. Walter Suiter, Herkimer; Charles Stover, Amsterdam.

Committee on Publication.—F. C. Curtis, Albany; Chas. H. Porter, Albany; F. D. Bailey, Brooklyn; W. W. Potter, Buffalo.

College of Physicians of Philadelphia.

SECTION ON ORTHOPEDIC SURGERY.

At the meeting held on Dec. 15, 1893, DR. F. X. DERCUM, Clinical Professor of Diseases of the Nervous System, Jefferson Medical College, read a paper on

SPASMODIC TORTICOLLIS AND ITS MEDICAL RELATIONS.

Before a body of learned specialists an elementary review of the subject of torticollis would obviously be out of place. Certain facts, however, owing to the paucity of our knowledge on the subject, demand repeated and careful consideration. Ordinary fixed wry neck, is of some interest to the neurologist inasmuch as most of the cases owe their origin to some primary disease of the muscles, generally the sterno-mastoid. As a result of congenital lack of development, or of trauma received during birth, the sterno-mastoid of one side is shorter than its fellow, and at the same time is rigid and sclerosed. That, however, fixed wry neck, is not always to be ascribed to this cause is shown by cases reported in which the affection was due to a tonic spasm of one sterno-mastoid, the spasm in turn being due to, or associated with, some affection of the eyes. Wadsworth in the Transactions of the American Ophthalmological Association for 1889, p. 381, reports such a case under the title of, "Spastic Torticollis Apparently Due to Faulty Position of the Eyes Cured by Tenotomy." Landolt (*Bulletin Medical*, 1890, IV, 573) records two cases, one associated with paresis of the left superior oblique and another associated with paralysis of the fourth pair of nerves Inasmuch as both cases declined operation, the causal relation of the eye symptoms could not be determined. Of the three cases reported, two occurred in young children and one in a girl of seventeen. All had existed since early infancy. These cases are important as indicating a possible relation of cause and effect existing between torticollis and eye symptoms in children. That, however, some of these cases are due neither to eye troubles nor to trauma received in childbirth or faulty position of the head in utero, but are really due to defective development is made probable by the observation of Osler (Archiv of Pediatrics, 1892, p. 81) who noted the association of congenital wry neck with marked facial asymmetry.

Spasmodic Torticollis.—Spasmodic torticollis is an exceedingly interesting affection of the numerous and varied character of the problems which it presents. We know little of the physiologic action of the motor nerve cells and of muscular tissue while of the pathology of spasm we know still less. There is probably, further, some good reason why local spasms predominate in the regions of the face and neck but all we could say at present would simply be speculative.

Regarding spasmodic wry neck we must, it seems to me, admit the following propositions: 1, spasmodic wry neck is not necessarily spinal accessory spasm. While it is true that the sterno-mastoid and trapezius are decidedly involved in the majority of cases, the spasm is frequently not limited to them but involves other muscles. Further, cases are on record in which no spasm in the spinal accessory distribution was present at all and in which, notwithstanding, rotatory spasmodic movements of the head occurred. Again, muscles other than the rotators of the neck may also be involved; 2, the constantly recurring rotation of the head is at times the outcome of purely local conditions and in that sense is a local spasm; at other times, though more rarely, it is the outcome of the action of physiologically associated centers in the upper cervical cord and medulla or, more rarely still, of the morbid action of a motor center in the cortex, and in this sense resembles a volitional movement. Both of these propositions seem to me to be of great importance. Regarding the first, it is frequently possible by the careful study of the movements of the head and of the action of the muscles of the neck to determine which of the muscles are actually at fault. However, this can often be done approximately. The first point is, of course, to determine whether or not the spasm is limited to the spinal accessory supply. If not, what other muscles are involved. The importance of this study in view of operative procedures can not be over estimated and doubtless is one of the reasons why some cases of resection of the spinal accessory nerve are successful and why others fail. Having carefully studied the movements and the muscles involved, the next point that suggests itself is to determine whether the case presents physiologic associations of different and distant muscle groups. This association is seen at times in the concomitant spasm of both trapezii and of the anterior belly of the occipito-frontalis of the elevators of the upper

lip. There is present at times, also, an associated movement of the arm on the affected side. If this movement be in extension and pronation it is probably a physiologic association. Though of great importance, it is not always possible to differentiate between a purely local spasm and a movement indicative of some perversion of the normal physiologic action. If such a differentiation be possible it is of the utmost value in suggesting to us the position of the lesion if any. From what we know of facial spasm we have a right to infer that the lesion may be situated either in the cortex, the lower nerve centers, or in the nerve trunk. It is probable that the larger number of cases with which we have to deal are cases in which either the gray matter of the upper portion of the cervical cord and medulla is involved, or in which the nerve trunks of the spinal accessory, or of the cervical plexus are at fault. Certainly, if the cortex were more frequently affected we should expect, as Gowers points out, associated movements of the eyes. These are practically never observed. It is true, however, that other associated movements, especially movements of the arm and forearm are very suggestive of cortical disease. Pressure points, so frequent in facial spasm, are, as is well known, rare in torticollis, nor do we often have painful points over the spinal accessory or other nerves. Such a painful point was present in a case for a time under my observation and was situated over the spinal accessory nerve. The subsequent history of the case, however, the nerve being excised, proved that the case was not one of purely spinal accessory spasm.

Regarding the various medical measures for treating these cases it is hardly necessary that I should go into detail. All present are familiar with the utility of such drugs as gelsemium, conium and morphia, and also of their failure to cure—at least in the vast majority of cases. It is hardly necessary that I should dwell upon the various other agents at our disposal; massage, electricity, and rest in bed as they give only amelioration and fail to cure. It is to the surgeon that we turn sooner or later with the hope of securing for our patient decided, if not absolute relief. Those who follow me this evening will have a great deal to say about the various surgical procedures that have been instituted. Certain facts, however, present themselves for mutual consideration. First and foremost of these is section, or rather ex-section, of a portion of the spinal accessory nerve. This expedient yields in a large number of cases marked benefit, and in some instances it is followed by a complete disappearance of the spasm. In three of my own cases, however, it gave comparatively slight relief, the reason being, doubtless, that the spasm was more or less generalized, other muscles being involved. One of these cases I had the opportunity of following up and later, at my suggestion, Dr. Keen operated upon her, resecting the posterior divisions of the first three cervical nerves. The operation had originally been suggested by Dr. Wier Mitchell. This expedient was followed by a decided relief, though at last accounts the spasm had to some extent returned. We can readily understand why if the spasm be very much generalized—if a physiologic movement be represented by it—that the number of muscles involved may be very great. Thus in addition to the trapezius and sterno-mastoid, some, or all, of the following muscles may take part: the splenius, the rectus posticus major, the rectus posticus minor, the trachelo-mastoid, the complexuses, the obliquus capitis superior, obliquus capitis inferior, the semispinales, the semispinales dorsi, and the multifidus spinæ. This array of muscles shows the utter hopelessness of securing absolute or permanent relief in some cases by any operation on the peripheral nerve trunks. However, such operations should always be attempted, provided the case be not clearly proven to be of cortical origin. It is both interesting and gratifying to learn in this connection that Dr. Keen's operation has been successfully repeated by Dr. C. A. Powers (New York Medical Journal, 1892, p. 253). The patient was one in whom there was very little involvement of the spinal accessory supply. Dr. Powers adopted the expedient of Dr. Keen, and the result was a complete cure. Mr. Noble Smith (spasmodic wry neck, London, 1891) has also performed the operation with a successful result. The recurrence of rotatory spasm after such extensive resection of nerve trunks as was practiced on the case adopted by Dr. Keen seems to point to the cortical origin of the disease. The propriety of a cortical operation in such a case naturally suggests itself and deserves serious consideration. The center for the rotation of the head being situated, approximately at least, in the posterior portions of the first and second frontal convolutions just in advance of the arm center, it would be, surgically, very accessible and could probably be electrically determined at the time of the operation. Inasmuch, however, as the center for rotation of the head and neck appears to be closely associated with that for conjugate deviation of the eyes, such an operation should only be contemplated as a dernier resort. Regarding other surgical procedures such as stretching of the spinal accessory nerve or tenotomy of the sterno-mastoid muscle, they merely deserve mention. They are little more than makeshift expedients. However, an operation devised by Collier (Lancet, 1890, I, p. 1354) deserves special mention. Collier, it will be remembered, tried the effect of a ligature upon the spinal accessory nerve. The ligature was a silver wire and was twisted with sufficient force to lightly compress the nerve fibers. Strange to say, the experiment was entirely successful, the spasm ceasing absolutely. The same expedient was, however, repeated by Drs. Mills and Deaver with failure as the result.

(To be continued.)

American Electro-Therapeutic Association.

The Third Annual Meeting Held in Chicago, Sept. 12, 13 and 14, 1893.

AUGUSTIN H. GOELET, M.D., President.

(Continued from page 34).

DR. CHARLES R. DICKSON, of Toronto, read a paper on

FURTHER OBSERVATIONS ON THE ELECTRICAL TREATMENT OF GOITRE.

The reception accredited a paper on the "Electrical Treatment of Cystic Goitre," which I had the honor to read at the last annual meeting of the ASSOCIATION, and the interesting and instructive discussion elicited has prompted me to offer some further observations along the same line, but embracing a somewhat wider scope as to varieties treated.

No statistics are presented, as I consider that to do so at present would be rather premature. For a number of years past I have been endeavoring to the best of my ability to aid in solving a question that was well and truly termed an opprobrium in medicine and surgery, by one who took part in the discussion of my former paper, and my intention is to briefly outline some conclusions at which I have arrived.

At my out-door clinic at the Toronto General Hospital, I am confronted with a large number of cases of goitre of different varieties, many of which have gone the rounds of the other departments, and finally are referred to my own, the youngest of the departments—the electrical—the result is that the greater number of the cases with which I am favored are of rather an unpromising nature. Yet for that very reason they offer the best field in which to test the value of this treatment, and though it entails a large amount of patient and careful work, still, I feel that I have been amply repaid for all the time and thought given to this most interesting subject, by the results achieved. The progress of a number of my cases has been carefully watched by many of the leading practitioners on the staff of our Hospital, and as a consequence several have intimated to me their intention to give the preference to electrical treatment in future, and already have shown in a tangible way their sincerity, by referring to me their cases in parish practice, which is the most satisfactory proof of the value of my work.

Among other points brought out in the discussion last year, one of the most valuable was by Dr. Holford Walker, as to the use of powerful currents applied by means of clay pads. I had already employed electrodes externally without puncture in some cases, but not with the powerful currents advocated by Dr. Walker, so I determined to test the utility of the suggestion, and am highly satisfied with the results; in fact, am strongly of the opinion that this should be a first step before puncture is finally resorted to—that is to say, in cases in which puncture would ordinarily be indicated—while in many cases it should constitute the sole treatment required.

The earlier a case is seen and the less previous interference, the better will be the results, and herein lies the great hope for the popularity of this treatment, for patients who dread the disfigurement, inconvenience and pain, to say nothing of the risk of surgical, and often, indeed, medical measures, and have frequently delayed consulting the practitioner till compelled by the discomfort attendant upon the increase of size, will on the first appearance of the trouble gladly avail themselves of a procedure which offers

such great inducements with so little discomfort and almost no risk.

The size of a goitre is no gauge of the attendant discomfort, and dyspnea or dysphagia may be present quite early, especially at certain times; thus when the patient is exposed to cold, or in the case of females before the establishment of menstruation, or at the menstrual period or during pregnancy and especially toward its close.

When a case presents for treatment, careful and extended inquiry should be made into the history and all points that would tend to throw light upon the subject investigated, and patients encouraged to give their own ideas on the subject, particularly as to suspected causation. Three measurements, at least, of the circumference of the neck should be taken, a fixed point, preferably the vertebra prominens, being chosen for the back, while the measure is carried above the tumor for the first, over the central portion for the second, and below the tumor for the third, and, if one of these measurements does not coincide with a circumference at the level of the Pomum Adami, that should be taken also; a vertical measurement over the median line in front is often useful. The boundaries of the tumor should then be carefully mapped out, and its probable structure determined. On the care bestowed upon your diagnosis will depend much of the success of your labors.

The cases which are probably the most favorable for treatment are those of simple vascular engorgement of the thyroid of recent origin; in these relief is experienced very early, in fact often after the first application, and reduction is usually quite rapid. For the positive electrode I use the Goelet modification of the Apostoli clay pad as in gynecologic practice, warmed and well moistened and slipped down the back between the shoulders, with a dry towel folded over it to protect the clothing and catch what little drip there may be; for the negative electrode, I use a thinner clay pad, with a single layer of gauze over its face, imbedded in it, and the edges carried over the sides of the electrode. The larger the size, the better, as it should cover all the surface of the tumor, if possible. When thoroughly moistened it is applied over the tumor and carefully adapted to all irregularities. A flexible perforated metal plate, such as tin with a spring split post to attach the rheophore, is then imbedded in the back of the clay and both held firmly in position by two or three turns of bandage drawn as tightly as the comfort of the patient will permit. The current must be very carefully turned on and shock avoided. At first the sensation is decidedly unpleasant, but the patient very soon gets accustomed to it and the strength may be gradually increased. It is always wise to proceed with caution and be content with fifteen or twenty ma., usually for ten minutes at the first application, and gradually increase the strength at future seances, which may be every second day, till the maximum the patient can stand with safety is reached. This will vary very much with different patients. I have several times gone as high as 250 ma., in one instance of a fibrous form without discomfort to the patient, but such I consider an exceptional case and 120 ma., or less is more usual. I consider a strong current for a short time preferable to a weaker one for a longer period.

I have not found it necessary to supply moisture to the positive electrode during the application as suggested by Dr. Walker—who employed a cotton covering at this pole—as it is always moist when removed, but sometimes drop from a spoon or from a pledget of absorbent cotton a solution of bicarbonate of soda on the upper edge of the negative electrode, and let it work its way down as the directive force of the current carries the moisture to the back of the negative electrode leaving the face of it dry. At the close of the séance, the electrodes should be carefully and quietly removed, and the site of the negative lightly sponged off with a cold solution of boracic acid; this is a precautionary measure as far as the skin is concerned, as well as conducive to the comfort of the patient who should also avoid unnecessary exposure during the treatment.

In later stages, even where the tumor is distinctly fibrous, it is still wise to try the clay-pad method first, as I have frequently noted it produced marked reduction; if, however, it is found that after several weeks of external treatment little is being accomplished, puncture may be resorted to, observing strict aseptic as well as antiseptic precautions. Here I employ the clay electrode positive as before, while for my negative I use either ordinary surgeon's needles or longer ones manufactured out of piano wire, insulated as required with two or three coats of collodion, each being allowed to dry thoroughly before the next is applied. If the patient is very timid, a preliminary hypodermic injection of five to ten minims of a solution of 5 per cent. cocain and 6 per cent. antipyrin in distilled water may be made at the site of the proposed puncture, or some local anesthetic may be applied, but if possible it is better to avoid this, and if your needles are sharp and sufficient dexterity employed, there will be very little pain. I prefer to puncture through the isthmus if I can, and from as low down as possible and through the same opening each time carrying the needle to the different parts it is desired to act upon, seeing that the uninsulated portion is well within the growth and overlying tissues protected by the insulation. Direct the patient to swallow several times during the introduction and steady the growth with the unengaged hand; in this way puncture of larynx or trachea may be avoided. On the introduction of the needle great caution and the utmost care must be observed. The current must be very gradually turned on. The patient may not be able to stand more than ten ma. for ten minutes the first time, but at future séances, which may be once a week, fifty ma. may be reached; it is not often necessary to go beyond this. The current is gradually decreased and the needle withdrawn; if there is hemorrhage it may often be checked by the application of iodoform in powder or gauze, or by pressure. The puncture is then treated antiseptically. It is often an advantage to employ the clay electrodes in the interval between the punctures, the site of the puncture being protected by a small piece of gutta-percha tissue.

In the large vascular varieties, slow progress will be made with the pads; still, they will frequently effect reduction, but when they fail to do so, puncture is often indicated. Here the introduction of the needle, as well as its withdrawal, will require even more than the ordinary care, as largely dilated vessels are frequently met with, and important vessels much deflected from their usual course, and troublesome hemorrhage may ensue, but here care, pressure and iodoform should assist you.

In the cystic form, I adhere to the line of treatment presented in my paper last year. The pad treatment is of very little use in these cases, except in so far as it may reduce edema and thus afford relief from pressure. With the negative pole is connected an aspirating needle insulated to the desired extent by means of collodion, and the bare portion introduced well within the sac, being careful not to perforate the back of it also, as thin walls offer little resistance to your pressure. The contents are then aspirated and the sac filled to distension with a filtered solution of chlorid of sodium in hot, boiled water in the proportion of ʒj to ℥j. The positive, large dry pad having previously been placed in position as before, the current is gradually turned on to about fifty milliampères for about twenty minutes; it is then gradually turned off; the fluid re-aspirated; the needle carefully withdrawn; the puncture at once treated antiseptically, and firm pressure made by means of a large, thick gauze pad over the dressing and retained by wide and long adhesive strips.

With the exophthalmic form, I have had less experience than with any of the others, and have nothing new to offer of any value.

As a result of a year's further experience, I still maintain that in electricity we possess one of the most valuable, if not the most valuable of agents for the treatment of the various forms of goitre mentioned. The cases which are not relieved, and relieved early, are the exception and not the rule; in many cases the first application is followed by a sense of relief from the dyspnea and dysphagia. A larger proportion of cases can be cured by this method than by any other means at present known to the profession. Many cases I have known to be cured or relieved which have resisted every other accepted form of treatment. While the injection of iodin, or even its external application, is sometimes attended with very bad results, with due precautions the electric treatment offers the safest form of procedure. Even when puncture is required the operation is safer, the pain less, and the resultant scar, if there be any, more insignificant than with any surgical measure necessary. There is no disfigurement during the time it is employed, hence patients will be more apt to resort to it early, while they are in the best condition to obtain relief. While the size of the growth is no gauge of the discomfort it is producing, neither should it influence our opinion as to the results to be expected to the extent that one would imagine, and a large, distinctly fibrous goitre the size of the two fists, has yielded more readily than a soft, flabby one the size of a walnut.

Great patience is necessary, as well as great care and considerable dexterity. The strength of current should be decreased at the close of the séance with as much caution as it is increased at its start, or great shock may ensue. A

case should not be regarded as hopeless till two or three months have been carefully spent upon it. It is well to intermit treatment occasionally for a period of several weeks, or even two or three months in the very chronic cases, and allow nature a chance to assist in the process of resolution and absorption. It may be indeed necessary to spread the treatment over a period of a couple of years in some cases. Slowness of result may be excused if cure come eventually.

The diagnosis should be very carefully made, then your battery or other source of power and all the parts of your current must be in good condition and resistance, internal and external, at a minimum, or the patient will be unable to tolerate the stronger currents.

The clay pads may be kept warm by means of Goelet's metal water bottle. Usually I keep the large one face downwards on a couple of folds of wet lintine and pour hot water over the face of it just before applying. It can readily be cleansed after using. The smaller pads I keep wrapped in a wet towel, first removing the flexible metal plate. Hot water may also be poured over these before using. All needles should be kept aseptic, while the aspirating needles and attachments will require particular care as to their aseptic condition.

Dr. Massey said that some years ago he had absolutely cured a cystic goitre which had resisted other means, but he had found it necessary to maintain drainage also. He thought this preferable to continued puncture. He had found iodin cataphoresis produced so much irritation that it was necessary to stop the treatment. Out of six cases of exophthalmic goitre, he cured four completely, simply from external applications of currents of ten milliampères.

Dr. Morton had experimented with very strong galvanic and faradic currents combined, by the DeWatteville switch. In one case, after a month's treatment, the tumor was reduced more than two-thirds. In another instance, very powerful faradization was used transversely, and then galvanization. It was possible that there was an advantage in this combined method.

Dr. Walker referred to the case of a lady who had been formerly under the care of Dr. A. Lapthorn Smith, but who now came to him as she was living in his neighborhood. She had come every year for three years, remaining each time three weeks under treatment. Relief was so marked that she could live the rest of the year comfortably. Probably three months would have given a practical cure, but she would not persist in the treatment long enough.

In answer to a question from Dr. Cleaves as to whether it was not common for the symptoms to disappear, even under the influence of mild currents, it was stated that there would be usually a decrease of one-half to three-fourths in size under each period of treatment as well.

Dr. Dickson, in closing the discussion, said he had endeavored in all cases of persistent treatment to avoid the admission of air into the aspirator, and to enforce strict antisepsis. His idea in using the fluid was to have every crevice of the sac filled with a good electrolyte. Some of his cases were relieved after the first treatment. The cases were mostly those which had received all kinds of external and internal treatment before coming to him.

In one case which was distinctly fibrous, and in which the tumor was of enormous size, there was a protrusion of the right eyeball. This diminished in proportion as the tumor was reduced, and at present it could not be appreciated by palpation. He had never tried faradization in goitre.

Second Day, Morning Session—September 13.

The meeting was called to order at 10:15 A.M. Dr. Holford Walker, Toronto, Canada, read a paper on

Ascites Treated by Galvanic Current—Report of Case.

A. J. S., age 9, suffering from marked ascites, and general ill health; was brought to me by Dr. Burritt of Toronto, latter part of October, 1892. History: During the summer the little fellow seemed somewhat depressed, and sat about, an unusual circumstance for him; he was taken to a watering-place during July and August, and went into the water only up to his waist, every day, remaining in ten to fifteen minutes. At that time he was observed to become thinner generally. End of September, his abdomen was found to be very much distended. Dr. Burritt was called in, and after two weeks' treatment met Dr. Strange in consultation. They decided to tap, and endeavor to make a diagnosis of cause, the abdomen being too tense to make anything out. Three pints of fluid were removed, but without throwing further light on the cause. Four days after tapping, the cavity was as full of fluid as ever, and patient continued to fail rapidly.

I advised exploratory incision, wash out abdomen and seek for cause. The father of the patient, however, thought otherwise, and insisted on a resort to electricity first, with the following results: Thirty-nine applications of from fifty to seventy-five milliampères were administered during the months of November, December and January, positive to abdomen and negative alternately to cervical and dorsal regions. The general health showed signs of improvement almost from the first; in three weeks it was perceptible that absorption was going on, and all fluid had quite disappeared by the end of January, together with recovery of general health. Has continued well up to date, with the exception of a mild attack of rheumatism, that occurred last month, involving the right wrist and ankle. He is now going about apparently quite well. I need hardly say that previous to electrical treatment, recourse was had to all remedial measures indicated in the case by the physician in charge.

Discussion.

Dr. Hayd asked the cause of the ascites.

Dr. Newman said he had notes at home proving the efficiency of electricity in ascites. He cited from memory the case of a man from the interior of New York who had extensive ascites and anasarca. Two physicians from Albany and five from Syracuse were called in consultation, and expressed the opinion that he could not live more than two days. He was then brought to the speaker for electricity. Inside of two days he measured three inches less, and finally he got well. The water was probably partially extracted from the body, and the secretions thereby stimulated. Without referring to his case-book he could not state what was the original diagnosis. He knew of several other cases which had been equally successful.

Dr. Engelman said that although it seemed hardly proper to bring up in this Association anything which would throw doubt on the electric treatment of these cases, he felt constrained to report a parallel case where two of the ablest physicians in his city were in attendance, and where he had no more doubt about the diagnosis than if he had made it himself. The patient is still living in St. Louis and has been in good health for the past eight or ten years. She was slowly sinking from renal disease, as shown by microscopic and chemic examinations of the urine, and the accumulation of ascitic fluid was enormous. His own father was the consultant, and agreed with the attending physician regarding the condition. The patient being in such a desperate condition, and the regular practitioners in attendance being unable to hold out any hope, some of the family insisted upon calling in a quack—a man who made certain "passes" about his patients. From that time on, improvement was steady, and she has since then been entirely well. The attending physician consented to be present and watched these foolish performances, and he can vouch for what was done.

Dr. Gehrung of St. Louis, thought that most of these kidney diseases are due largely to spasmodic irritation, and that the relaxing effect of the electricity on the nervous system allowed of renewed secretory activity. He had used electricity where there was partial suppression of urine, and no symptoms of Bright's disease, and had succeeded very well in relieving the condition.

Dr. Green asked if the reader of the paper had made a urinary analysis? About four months ago he was called to consult with Dr. Barbour in a similar case—a man 41 years of age who two years ago had an attack of septicemia. About eight months ago he began to show symptoms of asthma, and finally, microscopic and chemic analysis showed the existence of Bright's disease. His death seemed to be simply a question of a few days, as he was already semi-comatose. The attending physician suggested the use of galvanism, but the speaker did not think the suggestion of much importance. A week or ten days later, he saw the physician, and on inquiry was surprised to learn that the patient had entirely recovered. Galvanism had been used, and within four days the patient was very decidedly improved.

Dr. Walker, in closing the discussion, said that in his case a large clay abdominal electrode formed the positive pole, and because the patient was very sensitive, seventy-five milliampères was the highest strength possible. The negative pole was a large metal disc applied alternately between the shoulders and on the back. The treatment was given for fifteen minutes on alternate days. He was as much in the dark to-day as at that time regarding the diagnosis. Every

day the boy went into the water and was immersed up to his waist—whether that produced the sub-acute inflammation or whether, owing to a tubercular diathesis from the maternal side, a tubercular peritonitis had been set up, he could not say. It was with this in view that he had advised exploratory laparotomy, but the boy was in such a wretched condition that this measure seemed extremely hazardous. The kidneys were perfectly healthy. If the cure in this case were due to hypnotic suggestion, it is certainly a very tangible and practical method of calling hypnotism to our aid. Personally, he thought the cure was directly due to the continuous current.

(*To be Continued.*)

MISCELLANY.

Cincinnati Academy of Medicine.—The Cincinnati Academy of Medicine dedicated their rooms in the new Lincoln Club Building Monday, January 8. The rooms were ornamented with flowers, music filled the air, and there was speech-making galore.

Instance of Longevity.—John Dawson, aged 104 years and one month, and the eldest resident of the State, died at noon December 22. He had fifteen children, thirty grandchildren, sixty-four great-grandchildren and ten great-great-grandchildren. He attended the funeral of Washington, cast his first vote for Madison, and served in the war of 1812.

Deaths by Wild Animals in India in 1892.—The *British Medical Journal* states that in the year 1892, the mortality caused by snakes and other animals was 21,988 as against 23,650 in 1891. The deaths by snake-bite were returned at over 19,000, about 2,000 less than in 1891. The deaths in Bengal alone were by wild animals 1,664 and by snakes 19,025. About 85,000 snakes were destroyed, and 10,000 rupees were dispensed as rewards.

The Children's Hospital at Columbus, Ohio, was opened Dec. 30, 1893. The building is three stories, of gray pressed brick, with high tiled roof, ample windows and imposing entrance. The kitchen has been placed on the third floor, linen closets in keeping with the demands of such an institution have been put in, and many minor alterations have been made. The building is so arranged that two wards and an elevator can be added at any time in the future.

Testimony from Postmortem Examinations.—In a trial for assault with intent to commit murder, the Supreme Court of Illinois holds (case of Friederich v. People, decided Oct. 27, 1893; that it is competent for physicians to testify with regard to the appearance of a fractured skull at the time of a postmortem examination held more than a year after the assault. But such evidence can not be used to show that the person who committed the assault was responsible for the other's death.

Cook County Hospital Appointments.—The recent political change in the County Commissioners has made a corresponding change in the staff of this Hospital.

The following are the appointees, some of whom are on the present staff:

Surgeons—Drs. M. Muffat, O. J. Price, T. A. Davis, A. F. Hoadley, Francis A. Sherwood, A. J. Bouffleur, C. W. Hawley, Robert Melms, J. B. Murphy, C. W. Johnson and C. F. Greentree.

Physicians—Drs. James B. Herrick, George F. Butler, J. R. Reynolds, A. R. Edwards, George I. Sintxel, M. Meyerovitz, F. J. Mosehek, C. F. P. Korsell, W. H. Ballard, T. Turk and A. W. Baer.

St. Barnabas Hospital.—The trustees of St. Barnabas Hospital of Minneapolis, are much exercised over the prospect of losing the bequest of Mr. Martin of that city, who left a property known as the Keagan Lake property to that Hospital. It was, however, on condition that the citizens of Minneapolis should raise $1,000 annually for the support of the same Hospital. In case of failure to raise the amount, the property was to go to St. Luke's Hospital in New York city. As it is now said to be worth about $200,000, and likely to grow more valuable with time, there is little disposition in Minneapolis to allow the property to pass out of their control.

Medical Legislation in Virginia.—The law regulating the Medical Examining Board of Virginia is eight years old. Much good has been accomplished for the protection of the public, but the organization of the Board is such that it has failed in some of its legal aspects. The *Maryland Medical Journal*, December 23, states that it is proposed to reduced the number of its membership to ten, taking one regular physician from each Congressional district, plus two irregulars or homeopaths, to be selected by the Governor of the State. It is also proposed to amend the laws governing the prosecution of itinerant quackery. The *Journal* instances a case wherein the present laws failed of the purpose during the past year: a notorious quack from one of the northern cities set up his stand in Richmond and successfully defied prosecution, gaining his point by pleading the unconstitutionality of the license law. Under a legal technicality, and with the aid of a shrewd lawyer, the quack continued to practice at his own option and pleasure without a license from the Board of Examiners. When a lawyer goes to work to unravel the work of another lawyer, and succeeds in his endeavor, it behooves the Board to change its legal advisers, or take lessons from the counselor who drove them out of court. Although the existing laws have been a decided benefit to the profession of Virginia, and *pari passu* have been a protection to the general public, those laws should be so strengthened that they can withstand the first serious opposition that shall be made to them. The effect, upon certain low graded medical colleges, of repeated rejections, by the Board, of their young graduates has been to raise the standard of requirements in those colleges. One member of the faculty of a distant college is reported to have said that his college had been forced to raise the tests of graduation for the reason that his faculty was tired of seeing their graduates rejected by the Virginia Board of Examiners.

LETTERS RECEIVED.

(**A**) Allen, Ulamor, Jersey City Heights, N. J.; Aldrich, H. C., Minneapolis, Minn.

(**B**) Bernd, Henry & Co., St. Louis, Mo.; Brayton, S. H., Evanston, Ill.; Bridge, W. S., Elgin, Ill.; Billings, J. S., Washington, D. C.; Bates & Morse Adv. Agency, New York, N. Y.; Biddle, N. L. & Co., Chicago, Ill.; Breedlove, J. W., Ft. Smith, Ark.

(**C**) Comegys, C. G., Cincinnati, Ohio; Clausen, J. E., Omaha, Neb.; Cordier, A. H., Kansas City, Mo.; Chollar, F. T., Brooklyn, N. Y.

(**D**) Davidson, F. B., Fleetville, Pa.; Damrell & Upham, Boston, Mass.; Dodds, W. E., Pachuca, Mexico; Duffield, H. T., Pittsfield, Ill.; Dodds Advertising Agency, Boston, Mass.

(**E**) Elder, E. S., Indianapolis, Ind.; Eastman, Thos. B., Indianapolis, Ind.; Eyster, Geo. L., Rock Island, Ill.

(**F**) Foster, C. W., Woodfords, Me.; Flanigan, John R., Syracuse, N. Y.; Fehr, Julius, Hoboken, N. J.

(**G**) Garrison, F. H., Washington, D. C.

(**H**) Hummel, A. L., Philadelphia, Pa.; Hamburg American Packet Co., New York, N. Y.; Henry S. L., New Orleans, La.; Hubbard, G. W., Nashville, Tenn.; Hill, R. J., Minneapolis, Minn.; Haldensteln, J., New York, N. Y.; Hand, W. R., Kasota, Minn.

(**J**) Jones, A. F., Omaha, Neb.; Jones, P. E., Red Wing, Minn.

(**K**) Kern, W. B., Hastings, Neb.; Keasby & Mattison, Ambler, Pa.; Kelly, W. H., Covington, Ky.

(**L**) Love, J. J. H., Montclair, N. J.; Lassing, H. C., Union, Ky.; Louisville Hospital College of Medicine, Louisville, Ky.; Lambert Pharmacal Co., St. Louis, Mo.

(**M**) McBride, M. A., West Point, Texas; MacLaren, A., St. Paul, Minn; Miller, D. P. Huntingdon, Pa.; McGahan, C. F., Aiken, S. C.; Mitchell, C. Giles, Cincinnati, Ohio; Murphy, G. W., Danbury, Iowa; McFall, D. M., Mattoon, Ill.; McArthur Hypophosphite Co., Ansonia, Conn.

(**N**) New York Post Graduate Medical School, New York, N. Y.; North, L. G., Tecumseh, Mich.

(**O**) Ohmann-Dumesnil, A. H., St. Louis, Mo.; Oughton, C. M., Chicago, Ill.

(**P**) Patch, E. L., Stoneham, Mass.

(**Q**) Quillan, D. D., Athens, Ga.

(**R**) Ryan, L. R., Galesburg, Ill.; Rice, O. N., St. Paul, Minn.; Richardson, F. W., St. Paul, Minn.; Reed, C. R., Middleport, Ohio; Ranson, N. M., Somerville, Mass.; Raymer, Chas. D, Company, Minneapolis, Minn.; Ricketts, B. M., Cincinnati, Ohio; Richter, C. Ashland, Wis.; Rushmore, J. D., Brooklyn, N. Y.

(**S**) Sutton, R. S., Allegheny, Pa.; Steiger, E. & Co., New York, N. Y.; Simmons, Geo. H., Lincoln, Neb.; Sloan, M. G., Dexter, Pa.; Stechert, G. E., New York, N. Y.

(**T**) The Kenyon News & Subscription Co., Chicago, Ill.; The Geo. P. Rowell Advertising Co., New York, N. Y., (2); The University Penn, Press, Philadelphia, Pa.

(**W**) Westerman B. & Co., New York, N. Y.; Williams, D. A., Franklin, Ohio; Wilson, J. A., Beverly, Mass.; Walker Pharmacal Co., St. Louis, Mo.; Wegge, W. F., Winnebago, Wis.; Wright, O. S., Plant City, Fla.